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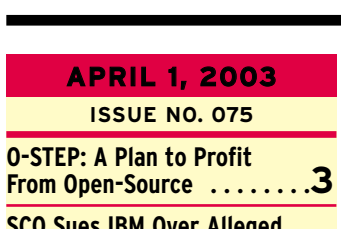

Where Does the Time Go? ..29

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JSR-1 FINALLY BEARS FRUIT: TIMESYS DELIVERS JTIME JVM

BY EDWARD J. CORREIA

After four years of development, the first-ever Java Specification Request has finally borne fruit. In mid-March, Linux developer TimeSys Inc. released JTime, a JVM and software development kit for real-time versions of its Linux distribution that it claims is the world's first JVM compliant with JSR-1, Real-Time Specification for Java (RTSJ). According to Doug Locke, vice president of technology at TimeSys (www.timesys.com) and

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REAL-TIME SPECIFICATION FOR JAVA

The RTSJ defines new memory, thread types and other capabilities for delivering predictable performance and circumventing garbage collection.

MEMORY TYPES: Immortal memory, once created, lives as long as the VM. Scoped memory stays alive as long as threads are accessing it, then it's returned automatically to the system as if it were collected. Heap memory ensures backward compatibility.

THREADS: Real-time threads access all memory types; no-heap real-time threads cannot access heap, can thereby preempt garbage collection; standard Java threads access only heap, ensure backward compatibility.

POINTERS: Used to move data between memory types.

SCHEDULING: Optionally shared between VM and operating system.

ASYNCHRONOUS EVENTS: Similar to hardware signaling, permits Java tasks to be abruptly started, stopped or redirected.

HP Defines Web Services Management

Monitoring modules to be melded into company's OpenView platform

BY YVONNE L. LEE

Hewlett-Packard Co. last month laid out a blueprint for managing Web services that involves both corporate changes and plans for new technologies that will ultimately enable Web services to be managed under the company's popular OpenView management platform.

Technologically, this plan differs from previous OpenView projects in that, normally, OpenView manages computers and other devices on the network. In this case, the new software components, called HP OpenView Web Services Management Engine, will intercept messages that monitor the Web services processes.

Demand could be two years away, says Meta Group's Ferengul.

Two other parts of the announcement, made at BEA Systems Inc.'s eWorld event in Orlando, Fla., March 3, were developed with BEA. The HP OpenView Transaction Analyzer uses APIs developed with BEA to monitor application transactions from BEA's WebLogic Server, IBM's WebSphere and Microsoft's DNA. The HP OpenView Smart Plug-in monitors and manages BEA WebLogic servers.

Offering various OpenView components isn't a new thing for HP, said Corey Ferengul, Chicago-based vice president of research firm Meta Group Inc. "OpenView now is like 70 some-odd products. It's no longer *a* product." What it does show, he said, is that HP recognizes that to

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Web Services Through the Looking Glass

Actional's new console manages policies across applications

BY ALAN ZEICHICK

Claiming that unmanaged Web services degrade when deployed in complex interdependent service networks, Actional Corp. has announced Looking Glass, a policy server and management console for its SOAPstation service brokers.

Looking Glass, according to James Phillips, senior vice president of product management at Actional, addresses the problem of real-world deployments of loosely coupled Web service applications, which create ever more complex linkages and interdependencies. While simple Web services apps might run quickly, he said, adding new applications to the loosely coupled service network often means "not only do the initial applications feel an impact, but any impact that builds on that service will begin to experience performance degradation."

Worse, Phillips said, "Some systems upstream may provide services that may rely on a Web

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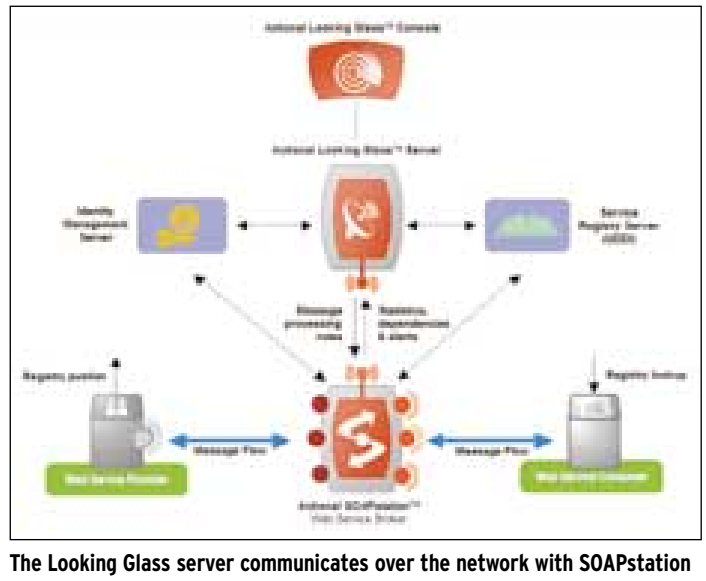

The Looking Glass server communicates over the network with SOAPstation in-network components, which add security and enforce policies and rules.

LINUX CLOSER TO DESKTOPS IN ENTERPRISE

Sun's 'Mad Hatter' set for summer release

BY EDWARD J. CORREIA

With US$200 Linux-installed PCs sharing shelf space with blank CD-Rs at the local Wal-Mart, it's clear that the server-savvy Linux may finally be finding its way onto American desktops. But companies should not race out to hire Linux desktop developers just yet, according to one analyst following the growth of the popular open-source operating system.

Optimistic that the enterprise will view Linux as a stable and attractive alternative to Windows desktops, Sun Microsystems Inc. this summer is preparing to release "Mad Hatter," the code name for its all-inclusive Linux desktop solu-

▸ continued on page 18

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O-STEP: A Plan to Profit From Open-Source Software

BY EDWARD J. CORREIA

An open-source advocacy group has unveiled a program that would allow ISVs to earn money by agreeing to open their source code after sales have reached a threshold set by the ISV, a plan one industry analyst has called "bizarre."

The newly formed Center for Open Source and Government (eGovOS) on March 17 proposed the Open Source Threshold Escrow Program, or O-STEP, a voluntary program that according to its organizers will serve to free governments and other high-volume software buyers from proprietary software lock-in while giving participating developers a chance to make it in the big leagues.

Tony Stanco, a longtime advocate of open-source software, is the founding director of eGovOS (www.egovos.org). But he was unwilling to provide any additional information about eGovOS, its funding, corporate or other sponsors, its membership or supporters, or how it would operate.

Stanco, who also founded the FreeDeveloper.net Web site, is associate director of the Cyber Security Policy and Research Institute (CSPRI) of George Washington University. He was formerly senior staff attorney with the Corporation Finance, Internet and Software Group of the U.S. Securities and Exchange Commission.

Stanco claimed the idea for O-STEP sprang from a belief that governmental organizations are tired of being forced to buy from a single company. "If they are buying Office, for example, they have to buy from Microsoft, and Microsoft locks them in because of its data formats," he said. "Do governments really want to feed one company?"

Here's how the program would work, according to Stanco: Developers would place the source code for a particular program version in an escrow account managed by eGovOS and set a sales threshold. Sales from all buyers would accumulate, and once the threshold is met, the source code is opened and licensed under GPL to all takers.

Industry heavyweights Sun, Oracle and IBM sponsored a conference in Washington D.C. last month at which the O-STEP proposal was unveiled.

John Meyer, senior analyst at Forrester Research, called the plan "bizarre."

"It makes no sense and it's anti-capitalism," he said," because what a company risks when they open-source their code is that someone else is going to modify it enough to claim it as their own intellectual property and have a competing product. It's also a way to have competitors scratch someone out of the market, because they're going to review what you have and figure out a way to do it better."

According to Stanco, that's exactly what's supposed to happen. "The idea is [for the new IP donor] to improve the next version and make it good enough that people will want to upgrade; to compete on merit and not lock people into the previous version. The incumbent will always know their code better than anyone else."

Leila Chucri, group product marketing manager for the Desktop Solutions Group at Sun Microsystems Inc., was enthusiastic. "I think it's an interesting program. Feedback we've gotten from corporations locked in by [Microsoft's] Windows licensing is that they are looking for an alternative." Sun offers a mixture of open and proprietary software.

BENEFIT QUESTIONED

But Forrester's Meyer still doesn't see the program as a huge benefit, even for recipients of the open-source code. "It's hard enough for real corporate America to leverage open-source internally. If it's not being updated or changed, it's okay, but if I'm going to be developing my mission-critical application and it's backed by open source, it's ludicrous."

Meyer also believes that engaging ISVs to open code would spell the end of the free-market economy. "This is why the Java argument has gone up in smoke and everyone has proprietary platforms. How else do you differentiate yourself? Without differentiation, everyone just goes for the lowest price."

It is such differentiation that Stanco said is precisely what the program is designed to combat. "The nice thing about standards, as the joke goes, is that there are so many to choose from. Everybody [embraces] open standards before the standard is set. [But] somebody always ends up with an advantage, and because you can't enforce the standard, they start playing the 'embrace and extend' game. The government isn't as stupid as it used to be. So unless we enforce the standard, somebody will own it."

Richard Stallman, founder of the Free Software Foundation, called the program a half-measure. "This doesn't go far enough. While this might eventfully lead to some programs becoming free software, I couldn't endorse use of a program merely because there was a possibility it would eventually become free. There's no point in giving people incentive to do something that is wrong and unfortunately may appear desirable when you are not thinking about freedom as a goal."

Stallman, who founded the GNU Project in 1984 that sparked the free software movement, also counts among his credits development of what has come to be known as the Linux kernel, which he refers to as the GNU/Linux kernel. ▮

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SCO: IBM Violated Unix License Terms

Asserts in $1 billion lawsuit that Linux code based on trade secrets

BY YVONNE L. LEE

SCO Group, a division of Caldera International Inc. that owns the rights to the Unix operating system, in mid-March smacked IBM Corp. with a $1 billion lawsuit charging that IBM breached its contract when it contributed code to the Linux open-source community. The outcome could have broad implications for tools and development for both the Unix and Linux platforms, experts believe.

SCO's legal complaint seeks to prove that IBM willfully tried to scuttle Unix, and worse, released proprietary information it licensed to build its own Unix version, AIX, into the Linux community. It further charges that the Linux operating system could not have gained its enterprise foothold without technology contributions and testing from IBM.

"Prior to IBM's involvement, Linux was the software equivalent of a bicycle. Unix was the software equivalent of a luxury car," SCO's complaint asserts.

IBM spokesman Joe Stunkard called SCO's lawsuit "full of bare allegations with no supporting facts."

"SCO never approached IBM to raise this complaint," Stunkard said. "Nor did [SCO] inform us in advance of filing the lawsuit." Furthermore, he said that neither SCO nor its predecessors raised any complaints about IBM's activity in Linux or other open-source projects in the years it has been involved.

SCO must think it has a good case, says Gray Cary's Radcliffe.

Outside observers said that SCO has a reasonable chance of winning this suit and that if it does prevail, it may go after other Unix distributors who are involved with Linux.

"You either go for the biggest guy on the block or you go for a bunch of small fries who are easy to catch," said Mark Radcliffe, partner at the law firm Gray Cary Ware & Freidenrich LLP in Palo Alto, Calif. "By picking IBM, I think that they feel strongly that they have a good suit."

THE AT&T AGREEMENT

IBM originally licensed Unix from AT&T's Unix System Laboratories in 1985 to produce AIX. The agreement required that the Unix software code be held in confidence, and prohibited unauthorized distribution or transfer of the code.

In 1995, The Santa Cruz Operation acquired Unix from Novell Corp., which had purchased the software from AT&T; the rights, the SCO name and assets were then acquired by Caldera, which last August adopted the SCO name for itself. This purchase included AT&T's original licenses for all Unix distributors, including HP, IBM, Silicon Graphics and Sun.

Although IBM built its own additions to AIX, going beyond the code originally licensed from AT&T, it could still be found liable if any proprietary AT&T assets made their way into Linux, said Will Zachmann, president of the technology consulting firm Canopus Research Inc.

"The key question is, 'Is there intellectual property that belongs to SCO that has found its way into Linux directly or indirectly through IBM?' " Zachmann said.

If there are indeed parts of Linux that are found to have incorporated Unix intellectual property, Linux distributors such as Red Hat and SuSE could face penalties as the result of future litigation if SCO wins this case, Radcliffe said. In addition, it could have a domino effect where tool makers stop creating products for Linux, making it harder for software developers to build applications for the platform, he said.

SCO would not say whether it planned to sue other licensees or Linux distributors if it won this case. "Right now, we're solely focused on IBM," said company spokesman Blake Stowell. "We really can't comment on possible future litigation."

However, one thing that could prevent SCO from any judgment is some ambiguity over Unix's copyright status.

Before 1991, companies that wanted to assert their rights to software and other published works had to actually place the copyright symbol somewhere on the work. Otherwise, it was considered to be in the public domain, said Radcliffe, who added that one version of Unix did not have this symbol.

So, although many of the words used in SCO's case are similar to those used in a copyright suit, the Lindon, Utah company had to file a trade secret infringement suit, which is harder to prove, Radcliffe explained.

The suit prompted Sun to issue a statement that it had no licensing issues with SCO and assuring its customers and partners that Solaris and Sun Linux were "safe choices" on which to develop and deploy services. ▮

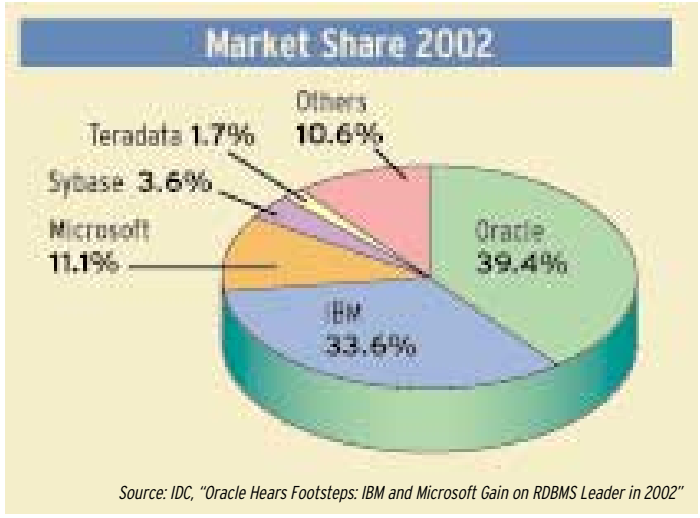
Oracle's Lead Narrows in Relational Database Market

BY YVONNE L. LEE

Oracle Corp. still leads the database horse race by a nose, but it's losing ground with IBM and Microsoft nipping at its heels, according to a preliminary study released by the research firm IDC. In the feature race of object and relational databases, Microsoft Corp.'s SQL Server trails the two leaders by several furlongs, but it is gaining ground the fastest, having grown at a 15 percent rate from 2001.

"In a database decision, it can mean that the decision is less clear cut," said Carl Olofson, the analyst who wrote the preliminary report, regarding the narrowing race.

The database race is becoming an increasingly sparse pack. The top three databases account for almost 85 percent of the market and the top five make up nearly 90 percent. Oracle and IBM are neck and neck with 39.4 percent and 33.6 percent of the market, respectively. Microsoft's SQL Server follows along with 11.1 percent. Sybase has 3.6 percent and NCR Teradata is coming in at No. 5 with 1.7 percent of the market.

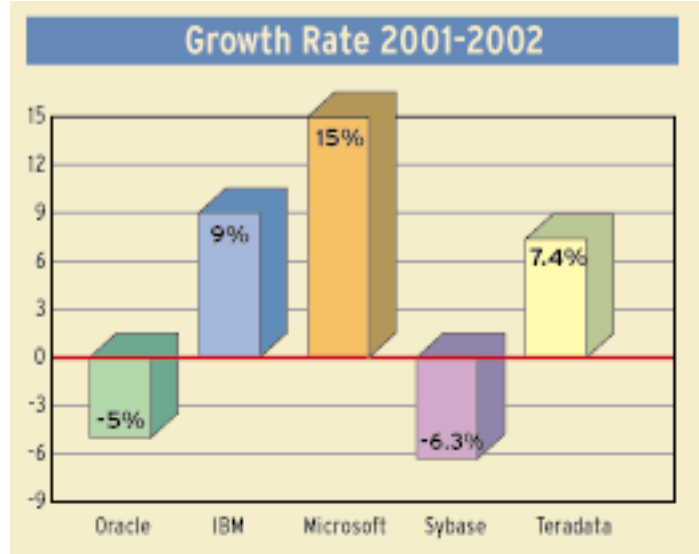


Source: IDC, "Oracle Hears Footsteps: IBM and Microsoft Gain on RDBMS Leader in 2002"

The overall market was basically flat, growing at 0.7 percent.

Leader Oracle gave back 5 percent of its lead, while the biggest loser was Sybase, whose market share shrank by 6.3 percent, according to IDC. IBM's DB2 was the second-fastest growing, at 9.0 percent, while Teradata grew at 7.4 percent.

Olofson attributed the slowdown in Oracle and Sybase sales to decreased enterprise spending. It said growth for IBM and NCR Teradata was largely due to those companies' middle-tier database server and business intelligence and customer relationship management growth, respectively.



Source: IDC, "Oracle Hears Footsteps: IBM and Microsoft Gain on RDBMS Leader in 2002"

For its part, growth leader Microsoft said it had good growth from integrating business intelligence into SQL Server at no extra cost, but also that its low-priced product offers good performance relative to its price.

"In a down economy, customers are looking for what's going to give them the lowest cost of ownership," said Sheryl Tullis, Microsoft's product manager for SQL Server.

IDC plans to release its final figures for the 2002 database market within two months. ▮

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News Briefs

COMPANIES

Oracle Corp. and **Sprint Spectrum L.P.** have integrated their Java development tools; users of Oracle9i JDeveloper can now run and test J2ME applications using the Sprint Wireless Toolkit. Sprint's toolkit is available at www.developer.sprintpcs.com.

PRODUCTS

Microsoft Corp. is offering a beta of **Windows XP Peer-to-Peer SDK**, which provides APIs for developing peer-to-peer applications. The SDK offers scalable name resolution, multipoint connections, group persistence and distributed data management. General availability is scheduled for late 2003 . . . Altova Inc. is now offering version 5 of its **Authentic** lightweight XML document editor for free. Authentic is a subset of Altova's commercial **XML Spy** IDE and **StyleVision** document editor . . . Another company giving away tools is Cape Clear Software Inc. Its free **WSDL Editor** for Linux, Solaris and Windows can be downloaded from www.capescience.com/downloads/wsdleditor . . . And another: FirstSQL Inc. is offering its **FirstSQL/J ProLite** embedded Java database under the GNU General Public License. Commercial apps require the company's FirstSQL/J Professional . . . Real Software Inc. has released version 5 of its **RealBasic** interpreter for Mac OS X; the Windows version shipped in October 2002. The cross-platform language and IDE now includes e-mail and http classes, and supports SSL and UDP-based communications. The US$99 software also includes a new runtime debugger . . . Version 2.6 of **Zend Studio**, a cross-platform PHP development environment from Zend Technologies Ltd., now integrates with the CVS version-control system from within the IDE. The update also can take advantage of Windows-specific file system features. The IDE costs US$195, or $249 with support . . . Berlin-based GEFEG mbH is offering a beta version of its **EDIFIX** tool, which is used to create, specify and validate B-to-B messaging specifications and implementations. Version 5.0 adds new functions for data modeling and generating XML schemas, and can build models compliant with OAGIS, xCBL, UBL, X12 and EDIFACT . . . InstallShield Corp. has updated its **InstallShield MultiPlatform** installer to support Mac OS X, as well as Java Swing libraries. The package costs US$2,499 per developer seat; upgrades cost $1,149 . . . IBM Corp. has changed the licensing for its **developerWorks Toolbox** subscription program, which provides WebSphere, DB2, Lotus and Tivoli development tools, platforms and support for enterprise developers. Subscriptions cost US$399 for the Starter Level, which includes **WebSphere Studio Site Developer**, with higher costs for other tools bundles . . . Version 2.0 of **Aardvark**, the bug-tracking applications from Red Gate Software Ltd., now can track issues and change requests. It also adds customizable submissions forms, automatic rule-based e-mails, and a Web-based user interface. Aardvark costs US$1,950 for 25 users, $3,950 for unlimited users . . . Hit Software Inc. has released **Ritmo for DB2**, a native ADO.NET data provider for IBM's DB2 database, which eliminates the need to access DB2 via ODBC or OLE DB, and works with both TCP/IP and SNA-based access to DB2 servers. Ritmo costs $3,995 per server . . . Axceleon Inc. has updated its **EnFuzion** grid-enabling software for Linux, Unix and Windows. Version 7.2 adds a Web-based user interface for the grid, improved network security and new tools for job automation . . . ObjAcct Business Systems LLC has released **ObjAcct XML Accounting Server**. The .NET-based server is designed to be embedded into portal or other applications, and integrates via Web services . . . Fair Isaac and Company Inc. has updated its **Blaze Decision System**. Version 5.0 of the business-intelligence tool lets developers create J2EE EJBs, and allows them to create libraries of models, strategies, rules and interfaces . . . IBM Corp. has added new software to its alphaWorks site: **Distributed Event Based Architecture for Web Services** (DEBA4WS) is an asynchronous architecture and Java framework for Web services based on the Listener design pattern; **Simple Browser Productivity Components** are a collection of small productivity applications that run in a browser; and ▸ continued on page 18

IBM Hopes Toolkit Has Domino Effect

Seeks to ease Lotus developers into J2EE

BY DAVID RUBINSTEIN

In an effort to prevent its nearly 500,000 Lotus Domino developers from jumping from Java to the .NET camp, IBM Corp. in May will release a toolkit designed to simplify development for the Java 2 Enterprise Edition platform, according to a company official.

The Lotus Domino Toolkit for WebSphere Studio is meant "to give Domino developers training wheels to get into J2EE," said Martha Hoyt, a senior manager in IBM's Lotus division. Hoyt said the company also plans to build more RAD features into a future release of WebSphere Studio for nontraditional Java developers who are more familiar with scripting languages or HTML, she said.

"[Microsoft's] Visual Studio .NET has the impression of being simpler [to Domino developers] because of their skill sets," Hoyt said. "We want to make J2EE more approachable. Many of them are scared by it."

IBM wants to enable Domino developers to take Lotus applications and the underlying data and use them in the transactional applications typical of J2EE, Hoyt said. By using custom JSP tags, developers can connect to existing Domino applications to build new JSPs, she explained, adding that the drag-and-drop design elements of Lotus Notes and Domino applications can be preserved.

The toolkit, which will ship with Domino Designer 6.0.2 coming out in May, is free. The toolkit comes in a directory structure separate from Designer, to be installed in WebSphere Studio.

This fits in with IBM's "On-Demand" strategy, which encourages service-oriented architectures to facilitate application assembly from component pieces, whether Enterprise JavaBeans, Web services or XML, Hoyt said.

The SOA also was behind IBM's mid-February release of WebSphere Application Server Enterprise, which adds a workflow engine to the company's core app server and supports business rules to alter the configurations of those flows, according to Scott Hebner, director of marketing for WebSphere. Also, the company released the WebSphere Studio Application Developer Integration Edition for creating the business rules and workflow as well as for creating Web services and composing applications from existing components.

"This is building the glue in an aggregated application," Hebner said. "Whether companies are modernizing or working in a heterogeneous environment, the service orientation pulls it together based on business rules."

Other features of the Enterprise app server include the proprietary ability to do dynamic EJB querying; the J2EE standard allows only static querying, Hebner acknowledged.

Also, application profiling allows developers to make performance enhancements by having EJBs react differently to different profiles, and developers can expose the parameters of an EJB to change the behavior of that bean in real time without recompiling, he added.

In addition, the server has transactional capability via several packaged adapters such as CICS and Host-On-Demand, and can support hundreds of other adapters sold separately by IBM. ▮

VA Software Puts Together Process for Collaboration

BY DAVID RUBINSTEIN

VA Software Corp. has made available a complement to its SourceForge Enterprise Edition development environment that brings together best practices for collaborative software development, the company announced.

The Collaborative Development Process (CDP) is designed for new development teams, or those seeking to organize development under the Software Engineering Institute's Capability Maturity Model, said David Appelbaum, senior vice president of marketing.

"The question is, how do you apply structure and discipline without crippling development," Appelbaum said. "CDP gives you a macro level of the project along with a more granular task level" to address the whole application life cycle.

The best practices refer to specifics within the SourceForge development environment, Appelbaum said, but the CDP "is not intrinsically tied" to SourceForge. Also, he acknowledged there are some software components within CDP, such as worksheets, templates and checklists, that connect back to SourceForge. "There is some home-field advantage, but it's not limited to that."

The CDP is based on the SW-CMM, according to Julie Stanton, senior product manager, with extensive mappings of each of the SW-CMM Key Process Areas (KPA) to the best practices for attaining them using SourceForge Enterprise Edition.

The CDP is not available to members of the SourceForge .net community, as the process is designed more for use within a business or enterprise environment with such elements as budget management and process repeatability, Appelbaum said.

VA Software (www.vasoftware.com) also announced it is partnering with Software Systems Quality Consulting to help companies get the most out of SourceForge Enterprise Edition and the CDP in going after SW-CMM level 2 and 3 compliance.

The CDP sells for US$300 per seat, Appelbaum said; the average price for a SourceForge Enterprise Edition installation is $2,700, he added. ▮

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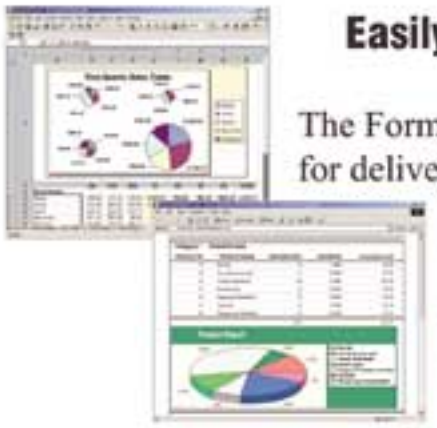

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ionForge Source Control Evolves Beyond App Development

BY DAVID RUBINSTEIN

Looking to expand source control beyond traditional software development, Las Vegas-based startup ionForge Corp. was scheduled to release on March 31 its Evolution solution, the company said.

The new tool, according to director of product management Mark Wood (www.ionforge.com), encourages companies to include all other software development project areas, such as technical writing and marketing efforts, in the same tool as the code project, giving project managers, development leads and business users a more complete understanding of the project.

"Often you have technical writers working on versions of help and marketing people working on versions of Web pages," Wood said. "We want to put it all into source control, so people across departments and geographies can view the project in its entirety. Now teams can treat their projects as a whole, rather than having to deal with them on a file basis."

The tool, which runs on Windows servers and requires a Windows client, integrates with Microsoft's IDEs and includes a migration utility to move from Microsoft's Visual SourceSafe into Evolution. The purchase price is US$399 per user, which includes a year of technical support and maintenance.

Evolution is the first in a family of products ionForge has planned in the application development and Web content arena, said Wood, who said that the company will be releasing tools for build automation and issue/change tracking. ▮

JCODEBOX LOWERS BAR

Visual Java tool priced under $250

BY YVONNE L. LEE

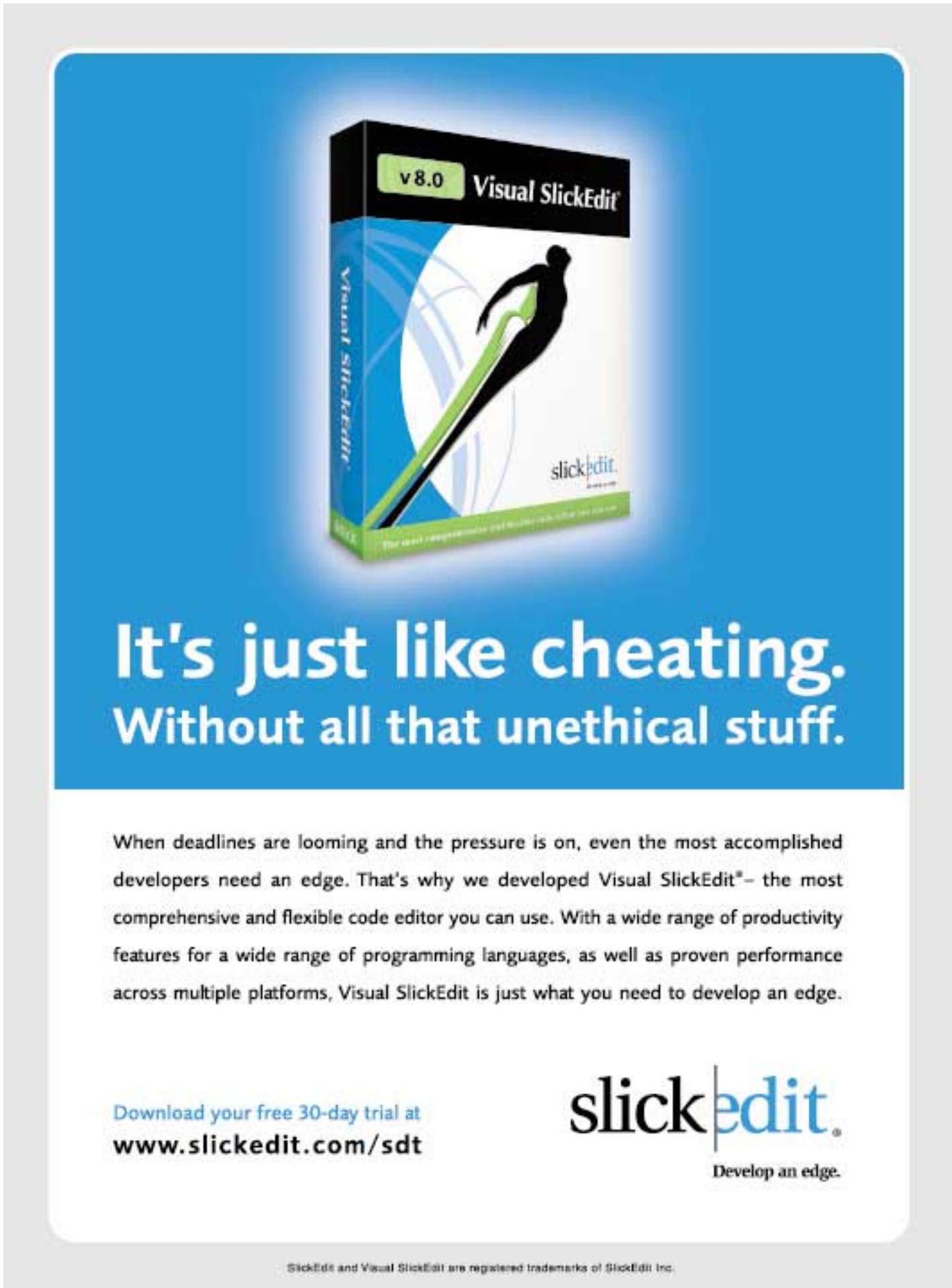
Michael Campbell Associates Ltd is shipping a Java application and component builder for only GBP£150 (approx. US$245).

The company said it developed the tools, collectively called JCodeBox "to address the prohibitive cost of current enterprise Java development tools and promote the adoption of J2EE by a wider audience."

JCodeBox is a visual development environment for Linux and Windows clients that can help developers create visual representations of applications, and then generate, build and deploy them from the visual representation, according to the company (www.jcodebox.com).

It includes an object-relational mapping engine for applications to link to existing databases using JDBC, as well as a J2EE pattern engine.

The generated code meets Java and J2EE conventions, claimed the company, so it can be imported into Java IDEs, the company said, adding that the product specifically supports deployment on BEA's WebLogic, JBoss, Macromedia's JRun and Oracle's 9iAS application servers, as well as Tomcat and Jetty. ▮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Laszlo Takes Standards Route to 'X-Internet'

BY DAVID RUBINSTEIN

Get/post is "a strange way to do applications" on the Web, according to Laszlo Systems Inc. founder and CTO David Temkin. The idea of the application having to request that a server send a page down to it, he said, is "as if Word had to go back to a server and reload a page if you wanted to use the ruler."

To enrich the user experience, the company (www.laszlosystems.com) has released the Laszlo Presentation Server, Developer Release, which it claims allows developers to deliver more dynamic applications in a Web page. "We're not replacing the business logic or the database," Temkin explained. "It substitutes for the HTML, DHTML or JSP."

Already, companies such as Macromedia Inc. and Curl Corp. have released products to deliver rich applications over the Internet, in a market some call the executable Internet. Temkin claimed Laszlo offers the only standards solution that doesn't require no new language, can utilize existing business logic, and lets applications can deploy into any browser.

"You're authoring in XML and JavaScript, wiring it up with server-side business logic and deploying to any browser," Temkin claimed.

"You can't ask developers to learn new languages," he insisted. "Curl is a difficult pill to swallow, no matter how elegant the presentation. And Flash could not get developer traction. Where is the code? It's inside graphics and reference constructs that make no sense to someone not familiar with graphics."

Laszlo's server runs in most Java-compatible servers or servlet engines. "If you have to deploy unknown servers in unknown environments, you're in trouble," Temkin said.

Temkin did acknowledge that Laszlo uses Macromedia's Flash player as its runtime. "It's an execution container for us," he explained, that allows Laszlo users to deliver applications to clients without requiring any new front-end downloads.

"This platform is independent of Flash," he insisted. "If the market moves in the direction where another client-rendering platform comes out, we can target that."

Rodney Aiglstorfer, national director of technology for professional services firm Semaphore Partners, said Laszlo's solution "is a fat client. There's no doubting it. It's a weird trend we go into and out of."

Aiglstorfer said Semaphore, whose efforts have spanned everything from creating micro sites within General Motors Corp. to developing the Orbitz.com site, is trying to apply the rich Internet application paradigm to business intranets. Laszlo and the other solutions right now are customer-facing, yet Aiglstorfer claimed much more can be done with portals and portlets.

"By and large, these are information-based," he said.

The downside of these rich applications, Aiglstorfer said, is that "it's easy to get carried away and create really heavy applications, because the perceived hit is all upfront, but that weighs on the users."

Developers create the look for the applications using Laszlo Foundation Classes, a user interface object library. Two pop-up windows appear in the screen—one has the actual application, the second has the company's LZ Viewer, where the XML is edited using any XML tool and defined classes can be exposed as XML tags, Temkin said.

Laszlo is offering the development tool at no cost; deployment pricing has yet to be set. ■

Infragistics Updates Java, .NET Components

BY ALAN ZEICHICK

Infragistics Inc. has revised its two presentation-layer component suites, one for Microsoft's .NET and COM, the other for Java.

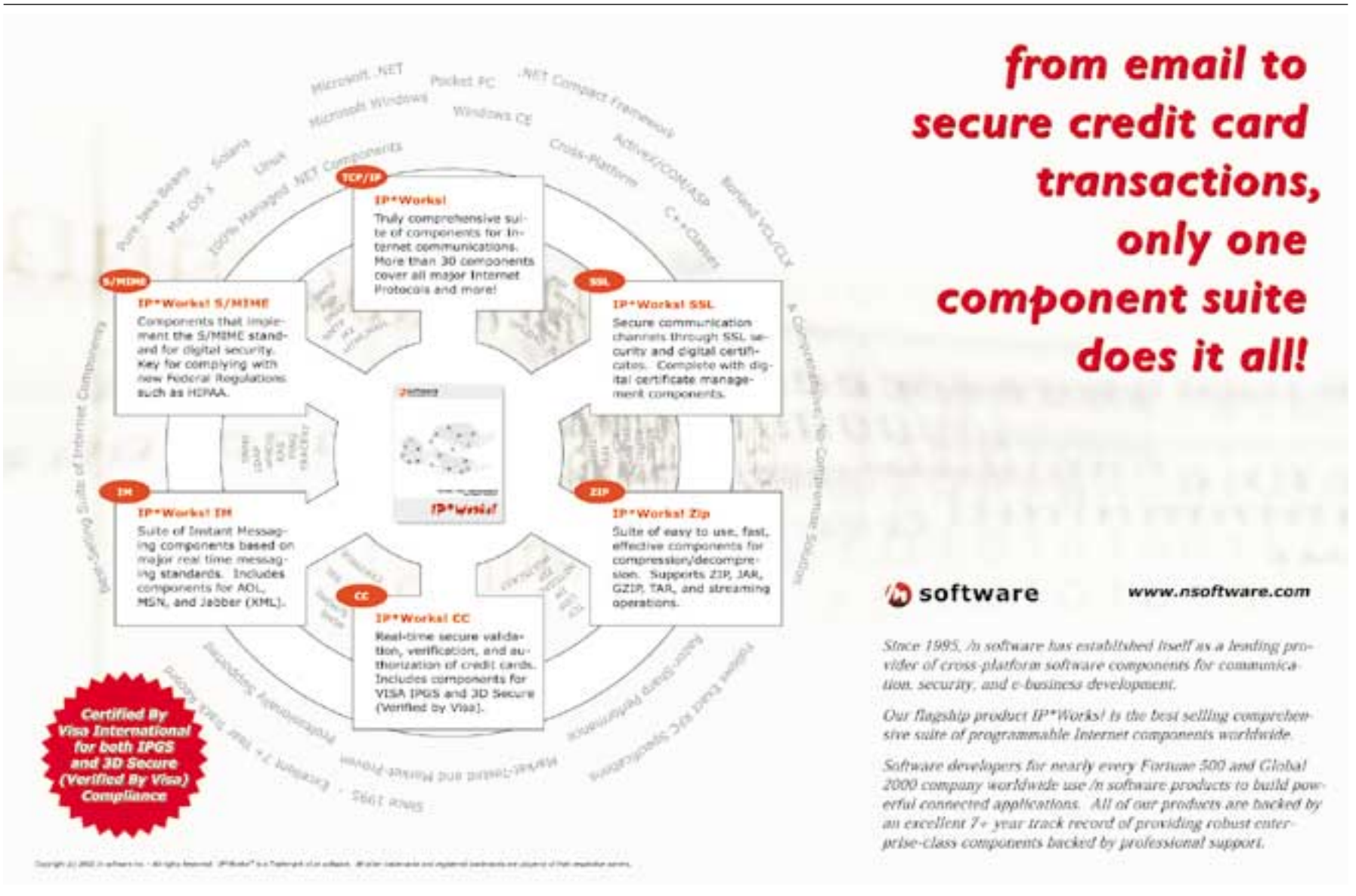
NetAdvantage 2003, Infragistics' suite for .NET and COM, incorporates a revised ASP.NET server-based data grid, with column/row templates, multicolumn drop-down controls, column moving and client-based data sorting, according to the company.

The component set, which had previously been called NetAdvantage Suite, also contains more than 75 client-based charting, toolbar, navigation, scheduling and other components. The suite, which Infragistics said is compliant with Visual Studio .NET 2003, costs US$495 per developer seat, or $695 with annual updates and source code.

Separately, Infragistics (www.infragistics.com) updated its JSuite, a set of Java user-interface components for the Java Abstract Window Toolkit (AWT), JavaBeans and Swing.

The biggest change, according to the company, is a set of client-side and server-side charting components.

JSuite 7.0 is priced at $795, or $995 for a one-year update subscription with source code. ■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SteelTrace Scales Down Requirements Tool

BY DAVID RUBINSTEIN

In an attempt to bring requirements capture and modeling to very small projects, SteelTrace Ltd. has released Catalyze LT, a scaled-down use-case-based requirements modeler.

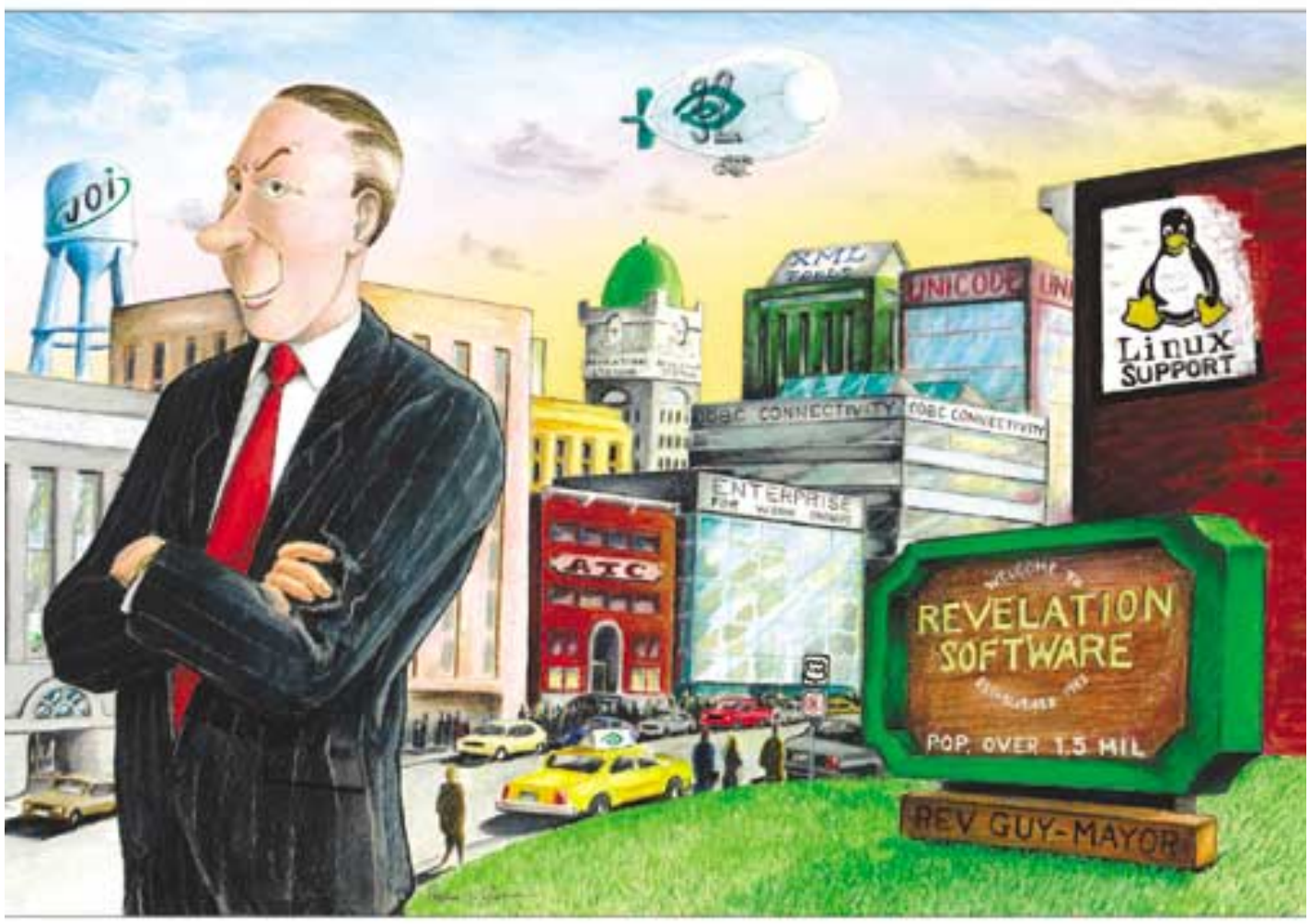
"The user community using LT would be smaller projects with a core set of requirements," said Fergal McGovern, the company's CTO. "There's not a great deal of synergy from project to project [of that scale], so you wouldn't be reusing the requirements."

Coinciding with the release of LT, SteelTrace (www.steeltrace.com) has renamed its other tools. Catalyze Solo becomes Professional and Catalyze Collaborate becomes Enterprise. With LT, SteelTrace now offers a requirements tool for projects of any scale, McGovern claimed.

Catalyze Enterprise has team collaboration functionality built on top of Professional's customizable reporting and document features, McGovern said; LT can generate documents, but they are not as customizable, he added, and it does not integrate with UML modeling tools, as do the other versions.

At US$495 per seat for Catalyze LT, SteelTrace is looking to seed the market. "A good chunk of users have a great need for this, working on short-duration projects."

McGovern indicated SteelTrace will be releasing updates to the enterprise and professional editions some time this month, and is working with Rational Software Corp. on a strategic alliance; he would not elaborate on that effort. McGovern did say that the acquisition of Rational by IBM Corp. has impacted the alliance by requiring SteelTrace "to go through some extra hoops to get the IBM blessing. We're playing wait and see" on the joint effort. ▮



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Recursion Adds SSL to Voyager

BY ALAN ZEICHICK

Messaging vendor Recursion Software Inc. has updated its Voyager Java middleware suite. The suite, which consists of a CORBA-compliant Object Request Broker (ORB), an encryption module and distributed transaction facility, now includes an API for SSL communications. The API is compatible with the Phaos and RSA SSL toolkits, according to the company.

The ORB also is able to take part in SOAP and WSDL-based Web services communications.

Recursion (www.recursionsw.com) also has added a Java Message Service 1.02-compliant module to the Voyager suite, which allows it to take part in JMS-based publish/subscribe asynchronous messaging.

According to the company, the Voyager Messaging implementation includes client persistence, which allows clients to continue publishing messages even if a fault causes the provider to become temporarily unavailable.

Pricing starts at US$1,000 for a single developer seat and a simple deployment. ▮

Parasoft Aims to Prevent Errors Automatically

New initiative puts responsibility for quality on programmer, rather than testers

BY ALAN ZEICHICK

Adam Kolawa has a new campaign, one which he calls "automated error prevention." It's not efficient, insists the founder and CEO of test-tools vendor Parasoft Corp., to detect software defects using a QA team.

His preferred approach: integrating the use of testing tools right into the development cycle using what he calls the automated error prevention methodology, or AEP, which forces developers to use them as part of the build process, and which uses management reports to display the results of those tests.

Kolawa described Parasoft's new AEP offerings as being a combination of tools, services, and training. "We can an take different methodologies, which are part of automated error prevention, including coding standards, unit testing, design-by-contract load testing [and] functional testing. We have pre-canned solutions which we can deliver to the development groups."

AEP only works if the techniques and use of the tools by the development team is enforced, said Kolawa. "We put a straitjacket on them, and get them to really use [the tools]. We learned the hard way that our customers really want this—because if they don't [have the enforcement], developers don't use the tools."

Parasoft's consultants assist managers with evaluating their development procedures, customize the company's tools and reports, and provide developer training.

As part of its AEP push, Parasoft also introduced a new tool called Global Reporting System that automatically gathers metrics from the company's test tools. GRS contains a relational database repository, data collectors that gather the data from various Parasoft tools, and a GUI-based report generator.

Parasoft (www.parasoft.com) is delivering its AEP solution in four bundles; for C/C++, Java, Web services, and Web applications. Each contains different sets of Parasoft tools, the GRS and tailored consulting services. According to the company, pricing is based on specific quotes for each customer and availability was set for late March. ■

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Sonic Updates MQ Message Server, XML Editor

BY ALAN ZEICHICK

Sonic Software Corp. has updated its Java message queuing server software, SonicMQ, and also has released a new version of Stylus Studio, the XML editor that the company acquired along with its purchase of Excelon Corp. in December 2002. Sonic is a subsidiary of Progress Software Corp.

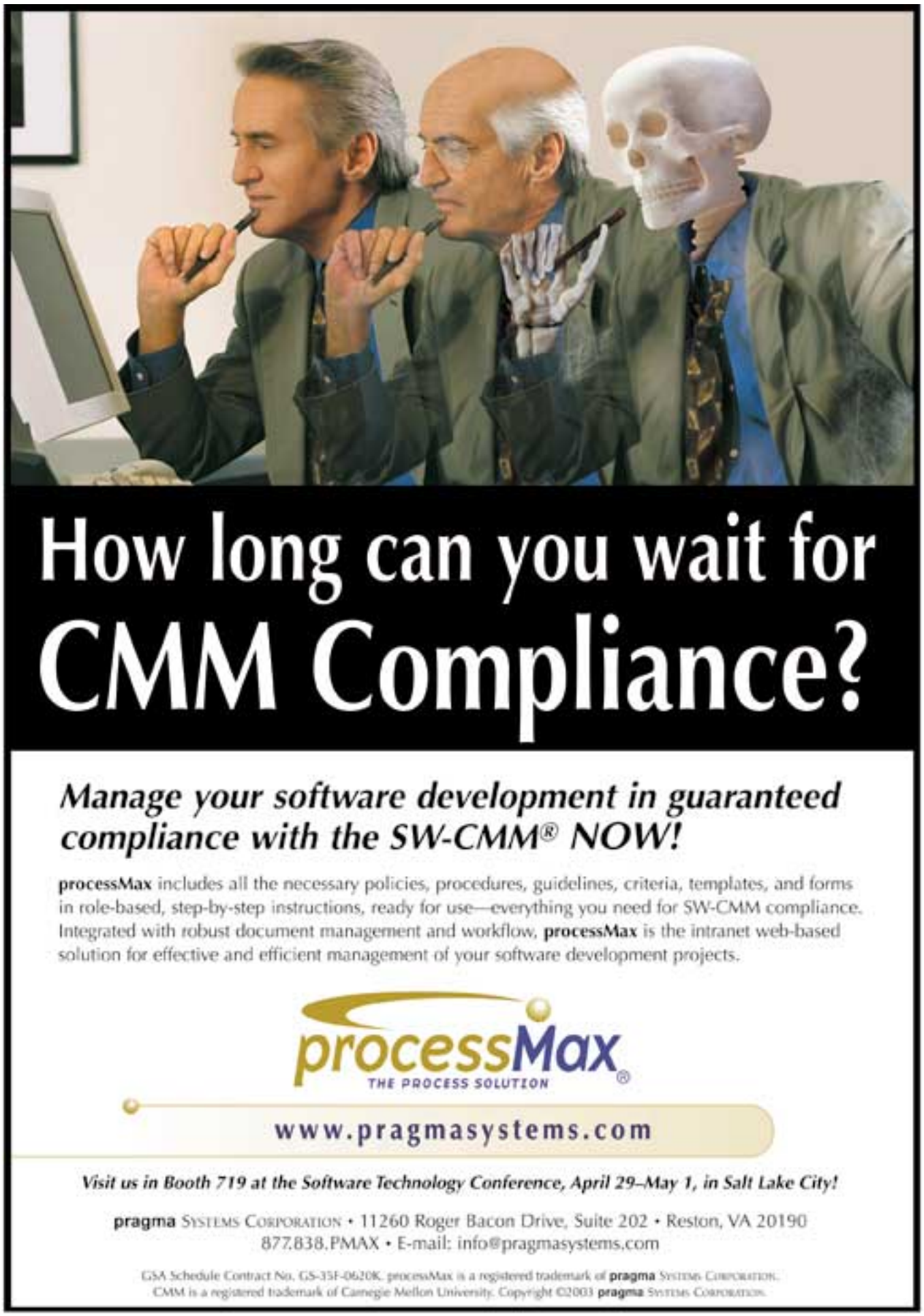
SonicMQ 5.0, according to the company, has been refocused on large-scale messaging across distributed networks, adding new management, scalability and security features.

Specifically, Sonic (www.sonicsoftware.com) has rewritten several of SonicMQ's broker components to be compatible with JMX, the Java Management Extensions specification approved by the Java Community Process.

For security, SonicMQ 5.0 allows administrators to configure messages to be compliant with a variety of protocols, including AES, DES and DES3, in addition to SSL, according to the company.

SonicMQ 5.0 remains at US$2,500 per server processor.

Separately, Sonic shipped version 4.6 of the Stylus Studio graphical XML editor. The new version integrates with Sonic's SonicXQ enterprise server bus. It also adds a new XQuery editor and debugger, an XML-to-HTML editor, and a graphic schema designer, according to the company. Pricing remains $395 per seat. ■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IONA TAKES INTEGRATION MOBILE

BY DAVID RUBINSTEIN

IONA Technologies Inc. last month released the first product in its rapid integration product line, Mobile Orchestrator, which the company said is aimed at keeping occasionally connected computers useful to business users even when off-line.

Where many off-line solutions involve caching data from a database, Mobile Orchestrator, formerly code-named "Inferno," borrows from the Internet model to make a wider set of documents available to non-connected users, said product manager Greg Lomow (www.iona.com). Mobile Orchestrator sits behind a company's firewall, and feeds documents and data down to the client application, he explained.

The keys to IONA's rapid-integration solution are that it is designed for service-oriented architectures and it is based on standards, Lomow said. "It's crucial to have well-defined business-level actions that make sense, that have a well-defined interface for easy access, and that are loosely coupled," he said. Mobile Orchestrator consists of the mobile client, an Orchestrator Server, Orchestrator Studio for building and testing Web services orchestration based on workflow and business process, and Orchestrator Connect, for object systems.

IONA has partnered in the initiative with Intel Corp., around whose Centrino mobile solution the Mobile Orchestrator solution is built. The solution, which became available March 24, is being sold through indirect channels, targeting systems integrators and ISVs, Lomow said. ■

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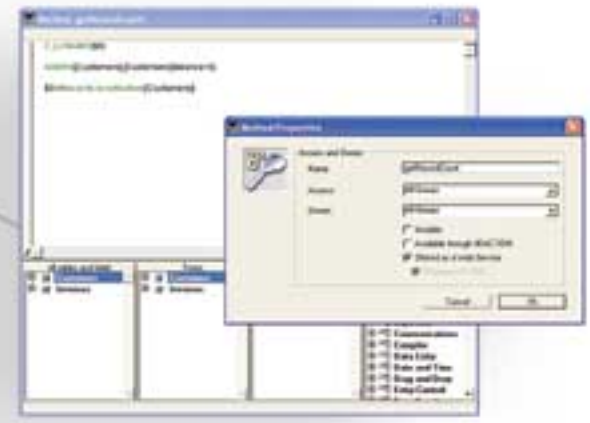

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News Briefs

MORE PRODUCTS

◂ continued from page 6

Struts Action Scripting is an Apache Struts plug-in for coding actions using scripting languages . . . Raining Data Corp. has shipped **Pick mvEnterprise 4.2.** The update to the AIX-based multivalue database adds CD-ROM-based installation and enhances the persistence of processes when database connections are broken . . . Appligent Inc. has shipped **FDFMergeJSL**, a Java shared library version of its FDFMerge application for merging database content into Portable Document Format (PDF) forms. The library, which can work with JSP, Java Servlets and EJBs, costs US$2,995, plus $599 annual support and maintenance . . . LogiGear Corp. has updated its **TrackGear** Web-based bug-tracking software. Version 3.5, which runs on Windows and SQL Server, adds automated rule-based issue escalation. Pricing ranges from US$1,988 for five concurrent users to $23,400 for unlimited concurrent users . . . Ada Core Technologies Inc. has released **GNAT Programming System**, an IDE for the Ada 95 language. The GPS environment, which runs on Linux, Solaris and Windows, supports mixed development using C/C++, and includes metrics, unit testing, a graphical debugger and links to version-control systems . . . Princeton Softech Inc. has updated its **Relational Tools** database test suite to support IBM's IMS database. Version 5.1 also provides new options for managing insert/update operations with DB2, and supports IBM's High Performance Unload and CDB's Auto Unload and Auto-Online Unload utilities . . . Version 4.0 of **Xtendable Server**, a Web development platform and content management system from DefenseWeb Technologies Inc., now runs within Microsoft's .NET Framework, and includes a form-based management control panel . . . DataPower Technology Inc. has updated its **XA35 XML Accelerator** appliance to include a Gigabit Ethernet interface, XML compression and SSL acceleration; the rack-mounted server costs US$35,000. The company also announced that Altova's **XML Spy** XML editor integrates with DataPower's **XS40 XML Security Gateway** appliance . . . Alpha Software Inc. is now shipping version 5 of its **Alpha Five** desktop database for Windows. The new release adds a user-interface language called XDialog, and includes a multipane script editor and an integrated debugger. The software costs US$349 per developer. Runtime licenses cost $399 for three users, $1,599 for unlimited users.

PEOPLE

SIDANA

Anna Sidana is the new VP of marketing for Wakesoft Inc., which sells an architecture server for managing distributed applications. Previously, she was VP of marketing and alliances at Callixa Corp. . . . WebMethods Inc. has promoted its CTO, **James Green**, to the new role of chief scientist; **Kristin Weller** to EVP of product development; and **Marc Breissinger** to VP and chief architect.

STANDARDS

OASIS has ratified **XACML, the Extensible Access Control Markup Language**, as an official open standard. The language can enable interoperability of security authorization products in a federated environment . . . The Java Community Process has issued the final release of **JSR-31, XML Data Binding**, which provides a facility for compiling an XML schema into classes that can parse, generate and validate documents that follow the schema. The JCP also has issued a proposed final draft of **JSR-154, Java Servlet 2.4**. Available for review are **JSR-105, XML Digital Signature APIs**; **JSR-127, JavaServer Faces**, which defines an architecture and APIs that simplify the creation and maintenance of Java Server application GUIs; **JSR-206, Java API for XML Processing (JAXP) 1.3**, which addresses security and performance issues; **JSR-207, Process Definition**, which creates an annotated Java syntax and APIs for programming business processes; and **JSR-208, Java Business Integration**, which extends J2EE to work with orchestration formats such as WSCI and BPEL4WS. ▮

SpiritCache 2.0 Goes for Traffic Control

BY EDWARD J. CORREIA

Middleware developer SpiritSoft Inc. was set late last month to release SpiritCache 2.0, the latest version of its network caching framework that it says automatically optimizes message traffic based on flow patterns, and enables developers to easily control how data is partitioned across the network.

Version 2.0 also is now JMS compliant, reportedly allowing integration with third-party messaging systems, including IBM's MQ Series and TIBCO's Rendezvous.

According to the company (www.spiritsoft.com), SpiritCache 2.0 analyzes how and where data is being used and automatically stores frequently used data locally, reducing database load and network traffic, and improving local performance. Traffic may be further optimized through JMS Selectors, which the company said permits developers to partition data across multiple machines, thereby reducing server-message traffic and resource utilization.

Also new is write-through caching, which reportedly helps ensure consistency of data by permitting an application to lock cached data while it propagates the data back to its source. The system also now supports Java Management Extensions for integration with enterprise monitoring tools, including AdventNet's ManageEngine JMX Studio, BEA's WebLogic JMX Console, HP's OpenView and IBM's Tivoli. The software also includes a stand-alone JMX console.

SpiritCache 2.0 costs US$2,995 per server processor and runs on any J2EE server, according to the company. ▮

DESKTOP LINUX

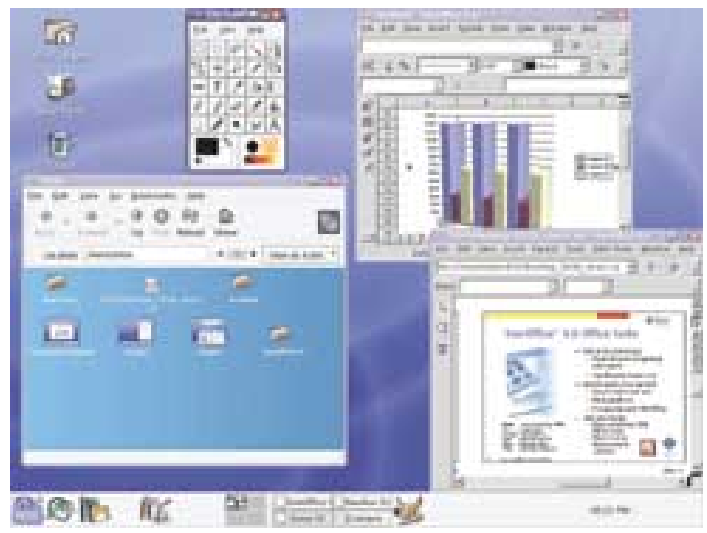
◂ continued from page 1

tion that it is targeting not only at transactional workers in government, education, financial and retail markets, but also at the general office worker.

Armed with software designed to mimic Microsoft's interfaces and file formats, Sun is integrating its Linux distribution with open-source versions of Ximian Inc.'s GNOME windowing environment and Evolution, a mail and calendar program; Star Office, which approximates the functionality of Microsoft's Word, Excel and PowerPoint; the Mozilla browser; the WINE implementation of Win32 APIs for Linux; and SAMBA for file and print services. All are promised to run on x86 and SPARC-based computers as well as Sun's Sun Ray thin clients.

Leila Chucri, group product marketing manager for the Desktop Solutions Group at Sun, said that the software will be preintegrated, fully supported and will be priced at as little as one-quarter the cost of comparable software from Microsoft.

According to Al Gillen, research director of system software at research firm International Data Corp., much of Sun's vision of Linux is right on. "We believe Linux is going to work its way into corporate America as a solution for transactional workers and people working in environments with limited functionality," such as in call- and order-taking centers, for example, where the underlying operating system doesn't much matter. "The user turns their system on and gets some in-house application and that's the solution they work with all day."



The GNOME windowing environment puts a point-and-click face on Linux.

UPHILL CLIMB FOR LINUX

Gillen said Linux still has a long way to go before it can replace Windows for the knowledge worker. "For more general users of productivity applications and for exchanging documents with other users, you run into more of a challenge using Linux in lieu of Windows, [particularly] with anything other than Microsoft Office," he said, adding that documents do not always render or convert properly when moving across platforms.

Even Sun's Chucri admitted that StarOffice does not convert Excel macros when importing from Windows.

Gillen believes that Linux's main opportunity is for replacing existing computers, not for installing new ones.

"When you look at the cost of moving off a Windows platform, it's true you save the cost of the [Windows client and Office] software. But what about the cost of training the users [on Linux and Linux apps]?," Gillen asked. "It's not free to replace an environment with another environment that people are not as familiar with. And when a worker loses productivity because their Excel formulas don't work anymore, those costs don't get added to IT [budgets]."

"Sun's got some compelling stuff," added Gillen, but cautioned that while Linux adoption is on the rise, it would have big shoes to fill. "A rise of a couple of million units is a drop in the bucket when compared with Microsoft's numbers. A two or three percent increase in Microsoft's client-side sales represents more than the entire Linux market."

Gillen's advice to most enterprise managers would be to hold off on recruiting Linux desktop developers for now. "If they don't have any Linux [in-house] and they don't have a rollout planned, then what's the point of developing Linux applications?"

Sun will offer its software on CD to enterprise customers in minimum quantities of 100, and is working with an undisclosed list of OEMS to offer machines with its software preinstalled. A beta program is set for spring. ▮

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Turn Development Into Integration, Like Magic

BY DAVID RUBINSTEIN

After seeing its eDeveloper Java-based application development tool, with its messaging capability, used in IT departments where integration was the development driver, Israeli software company Magic Software Enterprises Ltd. has made the tool one of the cornerstones of its new iBOLT Integration Suite.

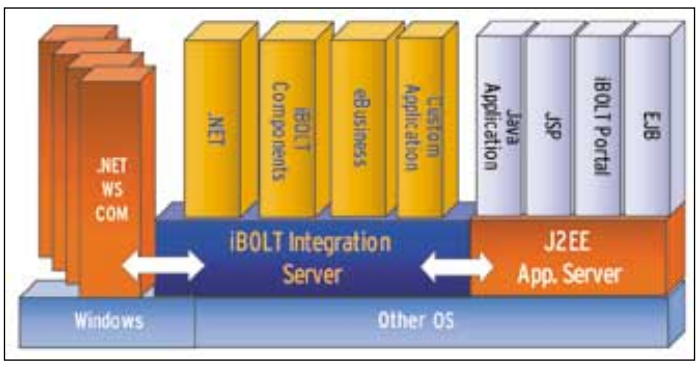
"The market has gone from being focused on application development to being a hybrid between application development and integration," said David Leichner, vice president of marketing for Magic. "It's now an area of composite development, of combining processes."

The iBOLT Suite, released in early March, comes in three segments, according to Avigdor Luttinger, iBOLT product manager (www.magicsoftware.com). The application integration and development environment is called iBOLT Studio and includes prepackaged Integration Flow Components for business logic, connectors and adapters; the Integration Flow Editor for designing integration projects; and the eDeveloper tool for customizing the flow components or creating new ones.

Magic has improved upon the graphical appearance of eDeveloper and the flow editor, with more icons, drag-and-drop and drill-down functionality, Luttinger claimed.

According to CTO Avikam Perry, the suite provides an open framework for the creation of an integration flow even before developers tackle the real business logic. "The flow shows connections and behaviors, which components to use next," he said. "We do not dictate language; we provide adapters and data connectors out of the box." Perry explained a developer would build an integration flow from the flow components that represent various activities.

The deployment piece is called the iBOLT Integration Server, which includes a runtime, native support for JMS, MSMQ and other Java-based messaging systems, a workflow engine, message sequencer and a business rules engine, Luttinger said.



Magic's Suite provides application and component integration as well as platform interoperability.

"Our message layer enables us to implement more sophisticated business logic than the message broker approach," he said. "It's a whole set of additional functionality that is more reflective of business process management and EAI [than message brokering]."

The third part of the suite is the iBOLT Integration Flow Monitor, which provides activity monitoring, logging and reports, and drill-down capability to the component level.

"The main differentiator between us and pure-play EAI players is our background. We're an application tool company, not an EDI vendor or a messaging company," Luttinger said. "Our original idea was to automate anything [in app development] that was automatable. Now with the focus moving to EAI, we're automating EAI as out-of-the-box components."

The iBOLT Suite is platform-neutral; Luttinger said the components can appear as OCX or COM objects as well as Java beans, adding that Magic is moving toward a rules-based composite development model and supports the BPEL4WS business process orchestration specification developed by BEA, IBM and Microsoft. "We're not far from supporting modeling," Luttinger said. "It's been low on our priority list but is moving up."

Also, Luttinger said one of the adapter components provides programmatic connectivity—otherwise known as screen scraping—to host systems, so users can extract or insert data and move it to create componentized applications. Further, the company is providing e-business templates for line-of-business applications, and is creating a marketplace to resell the templates as well as iBOLT Portal Components for grouping data into content zones, he said.

An initial implementation of the suite, with professional services, will cost about US$120,000, Luttinger said. The full production environment costs $65,000, with additional servers costing $10,000 each. ▮

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HP WEB SERVICES

◂ continued from page 1

work with Web services, it must focus on the application, rather than on the underlying infrastructure.

HP said that in the future it will support monitoring both J2EE and .NET-based Web services.

Including the tools as part of OpenView will offer both advantages and disadvantages to HP as well as its customers, said Bill Hailstone, London-based software infrastructure research director of research firm IDC. It will be an advantage to large organizations that already use OpenView as a management platform because they will have a single interface to manage both systems and Web services. It will be a disadvantage to small organizations that want just Web services management because buying OpenView will cost more than buying single-purpose Web services management products. Finally, it will be more difficult to sell OpenView, even with its Web services management components, to organizations that use other products, such as Computer Associates' Unicenter or IBM's Tivoli, he said.

Interoperability might not be as glaring an issue because HP says it is submitting parts of the Web services management framework to the OASIS Distributed Management Organization and working toward a Web services management standard. This would enable companies to design management-ready systems to integrate with management tools.

To support its initiative, HP introduced the Web Services Management team that will report to Nora Denzel, senior vice president of software. The team will participate in standards groups including the Liberty Alliance, OASIS, OGSA (Open Grid Service Architecture), W3C and the Web Services Interoperability Organization.

HP did not give any dates or prices for deliverables based on the BEA eWorld announcements, but that may not matter yet, as there is no current demand for management services, Ferengul said. "[Demand for]management of a technology usually follows its deployment," said Ferengul. Such demand is probably two years away, he added.

In a related announcement, OASIS announced plans to define a standard way of using Web services architecture and technology to manage distributed resources. The new OASIS Web Services Distributed Management (WSDM) technical committee will align its work with related activities at other standards groups. Members of the WSDM committee include Actional Corp., BMC Software Inc., Computer Associates International Inc., Confluent Software Inc., HP, Hitachi Ltd., IBM Corp., Novell Inc., OpenNetwork Technologies, SeeBeyond Technology Corp., Sun Microsystems Inc., Waveset Technologies Inc. and WebMethods Inc. ▮

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ACTIONAL

◂ continued from page 1

service. As the service continues to degrade, an application may experience failure." And when one application fails, he said, "a ripple effect continues through the network. The result being that the increase in application utilization has caused detrimental effects through a service network. It's unique to this type of application architecture, where you have complex system interdependencies."

The answer, Actional believes, is policy-based control and management, via their Looking Glass system. This comprises a server and console that allow developers and administrators to visualize and monitor all the Web services traffic within an organization.

The Looking Glass system assumes that all the Simple Object Access Protocol-based traffic flows through one of Actional's SOAPstation brokers or newly announced Active Agents, which currently communicate with Looking Glass via a closed protocol.

"Those in-network components interact with Looking Glass in two ways," he explained. "By being in the network, they watch the flow of traffic and messages, gather statistics, and look for alarm conditions. They transmit those up to the Looking Glass server, which then builds a network-wide view of all the systems and their interdependencies."

The Looking Glass console application provides a GUI interface to the server, he said.

SOAPstation is a network-based proxy application that aggregates and distributes Web services calls, and that also adds authentication, encryption, and end-to-end quality-of-service guarantees to SOAP-based messages. SOAPstation also allows the use of rules to control or route Web services, as well as to transform the payload based on XSL.

The new Active Agents, the first of which is for .NET, are simpler applications that run within an application server to gather statistics and enforce policies defined by a Looking Glass server. Actional (www.actional.com), according to Phillips, will be releasing Active Agents for BEA's WebLogic and IBM's WebSphere J2EE application servers.

Phillips indicated that Actional's intent is to open up the protocols used to communicate between the Looking Glass server and the managed SOAPstation and Active Agent software, so that other products could be in the loop. The initial efforts, he said, are through the Web Services Distributed Technical Committee at OASIS. "That's absolutely the goal. We want you to be able to mix and match these management components," he said.

Looking Glass was scheduled to be deployed to a select group of customers at the end of March, said Glass, but will be generally available at the end of April. He said that pricing isn't yet finalized, "but a typical deployment for an initial project is on the order of about US$200,000."

Also new is an update to SOAPstation itself, said Philips. Version 4.0 contains not only the Looking Glass management protocol, but also an implementation of the WS-Security specification, and the ability to apply a global policy across all managed Web services in a given SOAPstation. Previously, he said, rules had to be manually made for each managed service, even if they used the same policies. ▮

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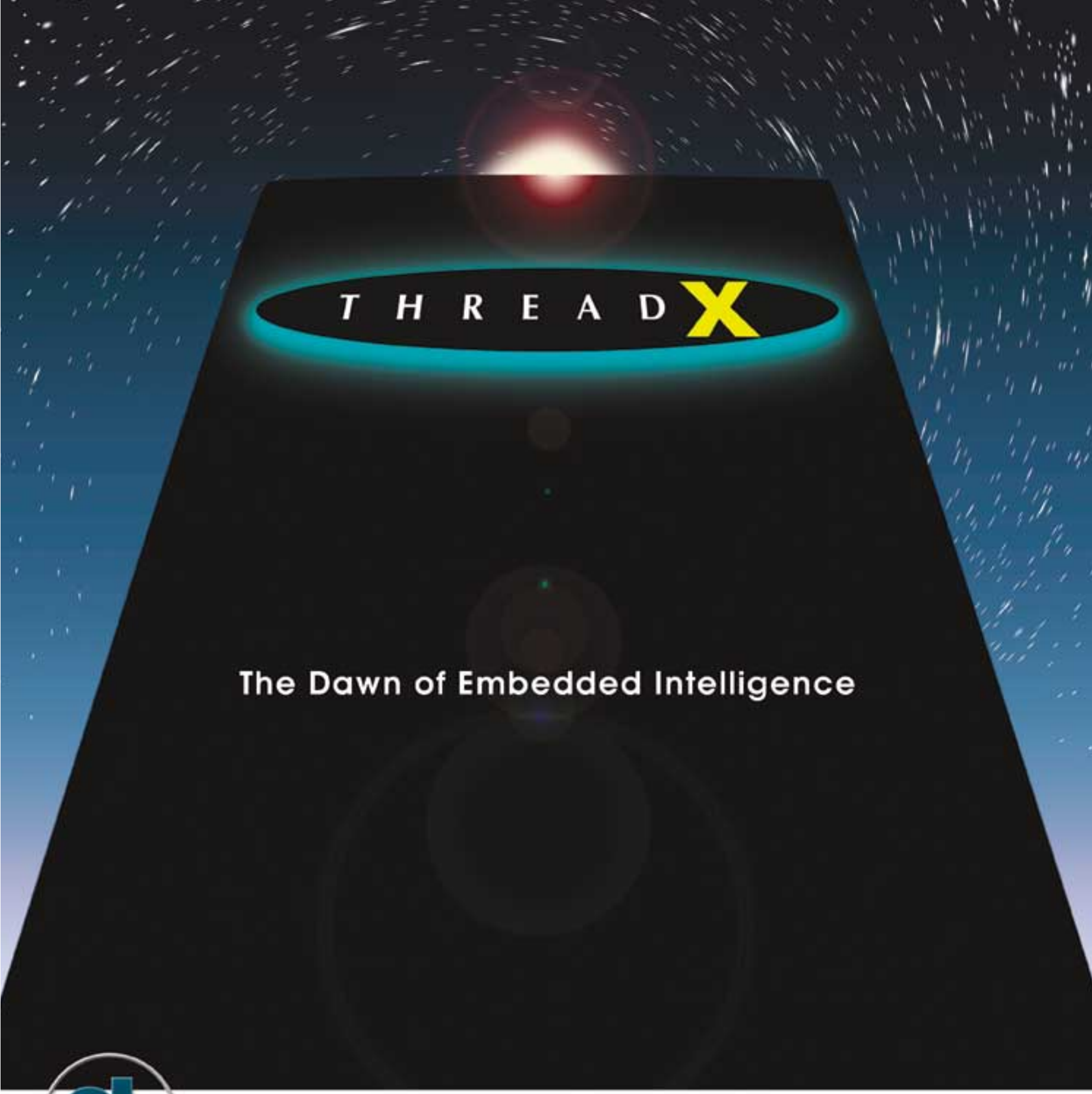

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Eclipse Framework Enters New Phase

C/C++ code editor, indexing, GNU debugger now part of core platform

BY EDWARD J. CORREIA

The Eclipse Project has entered a new phase, one that may cast new light on embedded, C/C++ and Linux development. Project organizers in late March announced the release of C/C++ Development Tools, an addition to the framework that makes a C/C++ code editor, GNU debugger and project management aids part of the base configuration.

According to Sebastien Marineau, senior software architect at QNX Software Systems Ltd., CDT does for C/C++ what the original Eclipse Project did for Java. "The project was designed to provide a foundation for C/C++ tools in the Eclipse framework [under which] we all work on the baseline pieces for C/C++ tooling, and then provide the hooks to customize it for specific environments." QNX took control of the CDT project in June 2002 after donating a substantial part of the codebase, Marineau said. To date, QNX and TimeSys Corp. have released IDEs based on the tools.

Chris Lanfear, practice director of embedded systems software at research firm Venture Development Corp., said CDT brings Eclipse into the mainstream. "Java development is great for the enterprise, but it's only a small piece of the embedded world. If you can start to integrate C and C++ tools or use available open-source tools, you're a lot better off, especially if you're [already] an Eclipse guy."

Marineau said that because C/C++ is older than Java, its developers are further evolved, and therefore require more diverse capabilities. "One of the things we've discovered is that in the C/C++ world there's a lot more extensibility needed, as opposed to the Java world, which is lot more uniform. C/C++ has a wide range of compilers, debuggers and ways to build projects, and that's a function mostly of how long C has been around. So the types of things that people want to do varies more than with Java, so we might have to support a variety of compilers."

CDT solves that problem, he said, by delivering the same functionality that every C/C++ IDE ends up reinventing. "A C/C++ editor is actually pretty complex, and there's no point in all the people shipping IDEs to have to reinvent that." In addition to the source-code editor and project-management features, Marineau said CDT provides the ability to index a project. "This is the ability to call a function and jump directly to the source file the function is defined in. This global indexing is a lot of work to implement."

CDT also includes the GNU debugger by means of what Marineau referred to as back-end integration. "By replacing the gdb that sits below the CDT, as opposed to replacing the CDT itself, we are able to support a lot of different C/C++ targets. For example, when QNX ships Momentics, we ship a debugger that knows how to talk to a QNX target. We just replace the debugger that sits below the CDT with the QNX version of gdb that has the right hooks for QNX."

In fact, most functions in Eclipse may be decoupled and replaced with a developer's own without impacting others, Marineau claimed.

VDC's Lanfear added that while the advantages of CDT may be more immediate for ISVs and operating-system vendors as a means to quickly enhance their offerings, its benefit to individual developers and the enterprise will emerge over time. "The list of benefits for developers is not all that long now, but will be in the future. The ability to be familiar with one IDE environment and use many different types of tools is an immediate benefit. But for interoperability, the full benefits are not going to be seen until [there are] a lot more tools that can be plugged in."

The C/C++ Development Tools 1.0.1 is available now and can be downloaded at www.eclipse.org/downloads, and requires Eclipse 2.0.1. Host platforms include Linux, Solaris, Windows and QNX. ■

ARM Reaches Out to Vendors, Developers

New alliances spawn tools to simplify core development

BY EDWARD J. CORREIA

Embedded processor giant ARM Ltd. hammered out several partnerships in March designed to simplify and improve the quality of development using its 16- and 32-bit RISC processor cores and intellectual property, and to increase component interoperability at the system level.

The company (www.arm.com), along with a trio of circuit design tool and IP providers, has released the AMBA 2 Transfer-Layer SystemC interface specification, which describes a method for interconnecting system-level design IP, simplifying the creation of systems-on-chips.

AMBA, short for the ARM Modular Bus Architecture, is an open specification for on-chip bus communications and a framework for SoC designs. The specification, which involved collaboration with Cadence Design Systems Inc., CoWare Inc. and Synopsys Inc., will be free of charge and is scheduled for release by June.

ARM also teamed with Synopsys to release the ARM-Synopsys Reference Methodology, which ARM claims can streamline the task of porting ARMís synthesizable microprocessor cores to new targets by boosting performance of core modeling. All ARM synthesizable cores, the ARM7 through ARM 11, will now incorporate the methodology, according to the company.

ARM also has entered into a five-year deal with Cadence to provide the EDA tools maker with access to ARM IP for Cadence Incisive, its new high-speed design verification tool, which Cadence claims permits engineers to build and verify reusable hardware and software IP blocks.

ARM in mid-March released RealView Compilation Tools 2.0, the latest version of its RealView Development Suite compiler component that it says is the first tool to support the ARM C++ Embedded Applications Binary Interface (EABI), a multi-vendor effort being led by ARM to standardize the way executables and shared components interact in embedded systems and across platforms. Also involved in the effort is Symbian Inc., which plans to support the interface in Symbian OS. According to ARM, version 2 extends ISO C++ support and expands its target list to include all ARM processor cores.

The company also in mid-March began shipping RealView ICE, an in-circuit emulator for its RealView development suite introduced last September that ARM said provides high-speed JTAG emulation for ARM processors via Ethernet or USB interfaces. RealView ICE costs US$3,500; trace and multi-core debugging capabilities are optional. ■

ORGANIC KEYNOTE AT ESC

BY EDWARD J. CORREIA

Aside from the latest wares of more than 300 exhibitors expected at this year's Embedded Systems Conference at San Francisco's Moscone Center, developers will be enticed by 88 new classes, many of which will focus on real-time design, Linux and open-source development, and wireless and security development issues, according to show organizer CMP Media LLC. Though exhibitor participation is down by about 10 percent from the show last spring, organizers expect attendance to be roughly the same at around 12,000.

The show's singular keynote will be delivered by Robin Saxby, founder, president and executive chairman of ARM Ltd. Saxby will discuss how the future of embedded computing must involve more than simply stuffing more transistors onto ever-denser silicon, and how the industry could see a convergence of conventional silicon-based circuits with biological materials.

This spring there will be four shop-talk sessions, free-form discussions for engineers and developers on a variety of subjects. On Wednesday, embedded systems veteran and author Jack Ganssle will moderate a discussion on "Strategies for Building Reliable Software." On Thursday, the only evening session, "Using Free Software in Embedded Systems" will be discussed by freelance embedded developer and training consultant William Gatliff.

Friday's shop-talk session will feature "Programming Style," and the importance of sharing a common style among development teams. It will be hosted by Dan Saks, president of Saks and Associates, a development training company. Michael Barr, a former embedded software and device driver developer and now editor-in-chief of Embedded Systems Programming magazine, will discuss "Alternatives to Real-time Operating systems," including such software structures as cyclic executives and state machines. These sessions are limited to the first 50 attendees. ■

EmbeddedSystems Conference San Francisco

CONFERENCE: April 22–26

EXHIBIT HOURS:
Wednesday, Noon–7 p.m.
Thursday, Noon–7 p.m.
Friday, 10 a.m.–3 p.m.

TUTORIALS:
Tuesday, 8:30 a.m.–5 p.m.
Wednesday, 8:30 a.m.–5:30 p.m.

CLASSES:
Wednesday, 8:30 a.m.–5:15 p.m.
Thursday, 8:30 a.m.–4:15 p.m.
Friday, 8:30 a.m.–4:15 p.m.
Saturday, 8:30 a.m.–11:45 a.m.

EXHIBITOR WORKSHOPS:
Wednesday, Noon–7 p.m.
Thursday, 8:30 a.m.–7 p.m.
Friday, 10 a.m.–1:30 p.m.

SHOP TALK:
Wednesday, 7:30 a.m.–8:15 a.m.
Thursday, 5:30 p.m.–6:15 p.m.
Friday, 7:30 a.m.–8:15 a.m.
Saturday, 7:30 a.m.–8:15 a.m.

KEYNOTE:
Wednesday, 10:15 a.m.–11:45 a.m., "Turning Good Design Into Good Science: The Future Convergence of Embedded Technology and Biotechnology," Robin Saxby, founder, president and executive chairman, ARM Ltd.

www.esconline.com/sf

Bambookit GUI 2.0 Grows Into Real-Time Java, XML

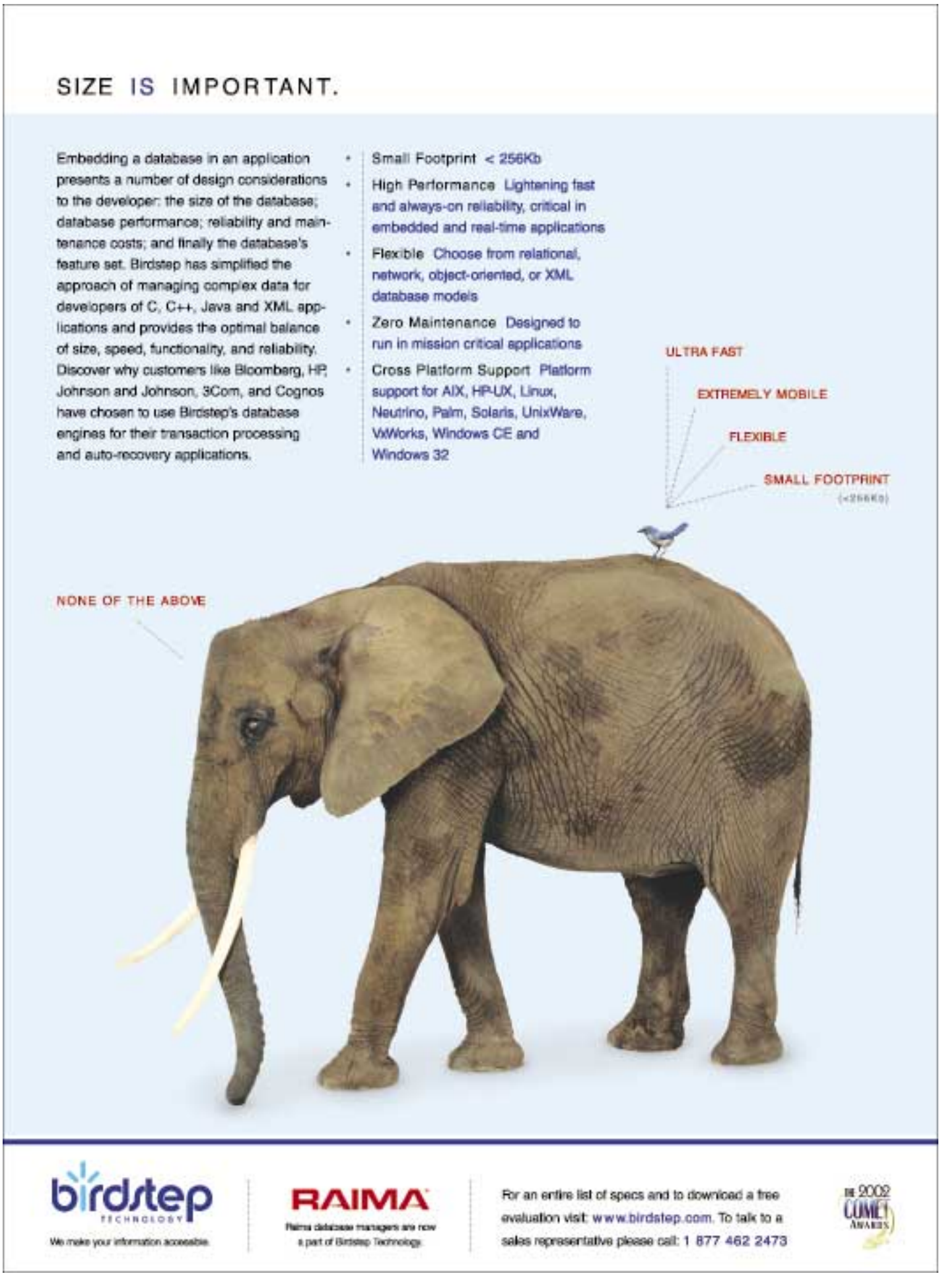
BY EDWARD J. CORREIA

Bambookit Inc. on March 30 released Bambookit GUI 2.0, the latest version of its PersonalJava and XML GUI builder tool that it said adds real-time data access capability, permitting its front-ends to access and display Web-based back-end data in real-time on PCs, kiosks and cell phones.

According to Louai Munajim, Bambookit's lead developer, the polling mechanism in version 2 can be configured to check a server at defined intervals, and will download data as required, paving the way to real-time applications including stock quotes, order status and real-time chat. "Also, it transfers only the amount of XML needed to update the page," minimizing network bandwidth requirements, he said.

Munajim said that other new features include a simplified layout manager with drag-and-drop capability aimed at Web designers and other non-developers. "It's a simplified scripting language with two basic functionalities—the layout mechanism and the event handling."

Bambookit GUI 2.0 (www.bambookit.com) occupies about 85 Kbytes of device memory and runs with a JDK 1.1 JVM, and according to Munajim, can interface with any ASP, JSP or PHP middleware. The kit includes predeveloped controls in Linux, Mac OS and Windows styles, including buttons, checkboxes, drop-down lists, tabs and windows. The software costs US$699 per seat for communication with a single URL, or $3,499 for eight seats and unlimited URLs. ■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2002 COMET AWARDS

TIMESYS

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spec lead for JSR-1, this finally lays to rest the years-old argument that Java is unsuitable for real-time applications. "This is a major milestone for the specification and for us," said Locke. TimeSys developed the spec's reference implementation and Technology Compatibility Kit (TCK) for the specification, which was given final approval by the Java Community Process in January 2002.

Locke said JTime will enable TimeSys customers in the military, aerospace and industrial control markets to build all-Java systems that would otherwise also include non-Java components.

Chris Lanfear, practice director for embedded software at research firm Venture Development Corp., agreed that a real-time Java implementation would find a ready following. "A lot of the folks in the military and industrial complex would like a replacement for Ada. You also have a much larger knowledge base in Java than in Ada; the number of Ada developers is dropping or staying flat, while Java continues to grow."

JAVA GETS NEW THREADS

Locke acknowledged that the Achilles heel of real-time Java has been garbage collection, the unbounded way it handles housekeeping. The RTSJ solves this problem with new memory and thread types, explained Locke. In addition to Java's traditional heap memory, RTSJ introduces immortal and scoped memory types. As its name implies, immortal memory lives forever within the application,

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TIMESYS

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Locke said, terminating only when the VM does. Scoped memory, he continued, is automatically removed when it is no longer needed. "A thread can create and enter a scoped memory area. But as soon as the last thread leaves it, the entire scope is freed up without having to do garbage collection."

The two new thread types are real-time, which can access heap, immortal or scoped memory, and no-heap real-time threads, which are only allowed to access immortal or scoped memory. No-heap threads can therefore pre-empt the garbage collector, Locke said, and are protected from its activities because they cannot create or use anything that might become garbage. The spec also supports standard Java threads. "The RTSJ is completely backward compatible; all standard Java programs will run in addition to real-time programs."

Greg Bollella, distinguished engineer at Sun Microsystems Inc. and author of the original JSR-1 spec request, clarified the TimeSys' claim of Sun certification. "JTime is JSR-1-certified. It also passed the TCK for regular Java, so in that sense it's Sun-certified."

Bollella, who first conceived of real-time Java in 1998 while working for IBM Corp., blamed the longer than usual development time for the spec on its complexity.

And that complexity, he said, also is one of the spec's main drawbacks. "Using scoped memory is a really tough programming exercise. In regular Java you just create objects and access them, and the collector cleans them up. In RTSJ that's not the case. When you use a no-heap thread, you have to be aware of where those objects are being put, how you're making pointer assignments, what objects you're trying to access and how to reuse them."

Bollella said such pointers are necessary for moving data across memory types, but are slightly more automated than the malloc/free commands of C. "Since the lifetime of any object in immortal memory is as long as the VM's, any object can point to an object in immortal memory. You use objects in immortal memory to get data out of the no-heap world and into the regular Java world. That's what immortal memory is primarily for."

SHARED SCHEDULER

The RTSJ also permits scheduling responsibilities to be shared between JVM and the underlying operating system, but Bollella said operating system involvement can be minimal. "You can leave all the [scheduling] up to the RTSJ and get a usable system, as in the reference implementation. But to get even stronger semantics, OS vendors are allowed to define them in addition to the base RTSJ."

The spec also introduces asynchronous events, a critical capability for real-time systems that TimeSys' Locke said allows threads to be tied to events, such as the hardware signals from a button-press. "One Java thread can poke another and say 'stop what you're doing right now and do something else'."

JTime was released on March 17. Pricing starts at US$1,495 including TimeSys Linux 4.0 standard edition command-line tools for Linux or Windows, plus one Pentium BSP. For $4,900, developers also receive a trace tool and TimeStorm, the company's Eclipse-based graphical IDE. Volume-based royalties start at $100. Existing TimeSys real-time SDK customers can add JTime for $3,000. ▮

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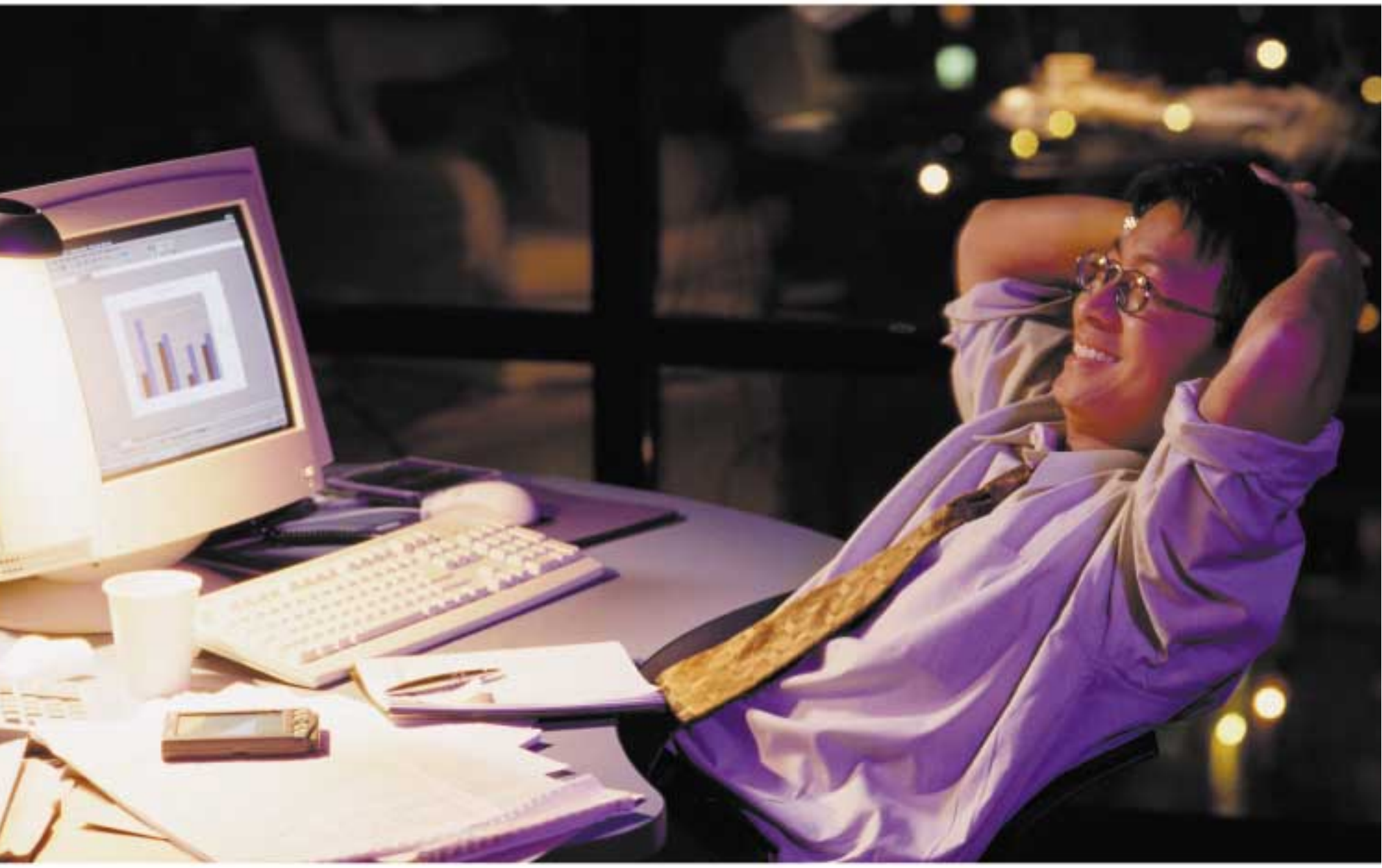

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Where Does The Time Go?

Performance tuning tools can help determine where a Web application spends most of its time. But their real value, experts say, is in improving the development process.

BY ESTHER SCHINDLER

The essential problem in Web application performance tuning is the difficulty of creating accurate and specific performance goals early enough in the development process for the metrics to be of any use.

You want your Web applications to run fast. The programs don't have to be instantaneous, but you definitely don't want end users to whine about slow screen updates.

However, it's hard to translate "fast enough" into measurable criteria, much less to track the application's actual performance and determine what makes it slower than it ought to be.

Plenty of vendors offer tools for monitoring Web applications at each phase of development and to discover what's causing slowdowns. We counted 30, and we weren't trying hard. Some of these tools test components, others focus on the server or network traffic, and still others stress their ability to profile code. You'll find tools that look expressly at J2EE performance, and others that single out SOAP or Web services transactions.

Each of these tools (or at least most) has value, and each can solve certain kinds of problems.

MONTHS, NOT YEARS

Web applications change the rules for performance tuning. In enterprise client/server development, the ROI was often measured in years, justifying investments in testing labs. Compare that with the ROI for Web applications, said Toffer Winslow, director of product management at Empirix Inc. (www.empirix.com).

Web ROI is often measured in months, although the applications change rapidly, the architecture is dynamic and multitiered, and complexity is increased by a multitude of servers and tools from different vendors.

Empirix's e-TEST suite includes tools for functional/regression testing, load/scalability testing, and test process management.

Don't forget the importance of browser-based applications running within your enterprise. Jonathan Rende, vice president of testing and tuning at Mercury Interactive Corp. (www.mercuryinteractive.com) pointed out, "Most Web applications these days are mission-critical." Mercury's Optane is a suite of integrated products for enterprise testing, production tuning and performance management.

Whether in a browser or not, users expect software to respond swiftly. Tom Mulvehill, product line manager for Web technologies at Precise Software Solutions Inc. (www.precisesoft.com) said, "There's no difference in performance expectations for Web applications—that's part of the problem." Precise sells Insight, which measures application end-to-end response time and segments it by IT tier/component.

Web ROI is measured in months, says Empirix's Winslow.

CREATE METRICS EARLY, OFTEN

It's easy to offer the lofty advice that you should establish the acceptable performance criteria as part of the product spec, but that suggestion also is unrealistic. Clients and application owners who are thinking about functionality are unlikely to get more granular than "fast enough that the users don't complain."

Clearly, leaving performance testing to the last minute is a bad idea, and no amount of after-the-fact tuning will change a design error. Yet, between the demand for service-level agreements and the sure knowledge that if you don't test for it, you won't get it, you know you have to do *something*.

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WRONG ASSUMPTIONS

Developers often hold erroneous beliefs regarding Web application performance tuning. SD Times enlisted the help of several software vendors to identify these beliefs and to get their comments:

- **Waiting until the end of the project to think about performance.** "A performance design flaw cannot be tuned at the server or in code," say John Bowman, vice president of product management at Cigital Inc.
- **The relevance of network speed and connectivity.** Because they think primarily about code, and their own network speed is fast, most programmers give no attention to network issues. "Developers assume that bandwidth is unlimited and latency is zero," said Lloyd Bloom, Compuware Corp.'s product manager for Network Vantage. Similarly, developers make wrong assumptions about their users' connectivity. "A customer told me that because they had a B-to-B application, almost all their users would connect at T1 speed. It turned out that over half their users telecommuted at 56Kbit/sec modem speeds or less," explained Jay Weiser, Segue Software Inc.'s director of strategic solutions. Segue SilkTest is a functional testing product.
- **Accurately setting requirements.** "Most performance requirements are like writing notes on the back of a cocktail napkin," said Jonathan Rende, Mercury Interactive Corp.'s vice president of testing and tuning. A related issue is assuming that the requirements are right. Just because the client says he wants nanosecond response doesn't mean that it's possible or that it's truly necessary.
- **Database retrieval errors.** "A common error with drastic performance implications is to retrieve a database row repeatedly—hundreds of times—rather than retrieving the entire data set," said Compuware's Bloom.
- **Encrypting everything in sight.** Any encryption significantly degrades performance," said Jeff Zado, Quest Software Inc.'s JProbe Suite product manager. Developers need to examine which parts of an application really need to be transmitted with higher security.
- **Lack of understanding of the whole system.** Because developers increasingly specialize, they can easily be unaware of optimal performance settings between two Web-centric applications. Performance tuning for DB2-to-WebSphere may be very different from tuning options for Oracle.

—Esther Schindler

Tuning Up for the Web

BY ESTHER SCHINDLER

Most developers agree that the earlier the performance specs are provided, the easier it is to build an application to meet those goals. If the development and QA staff hold the responsibility for meeting the performance requirements, who sets them? And when?

In most cases, we found, the person who specifies an application's performance acceptance criteria is the client (when the work is performed externally) or, for corporate applications, an internal client: the line-of-business owner who's responsible for getting the application written or deployed. That individual is responsible for setting the rules early on: how many users will access the application, the throughput expected and so on.

At least, that's what it says on paper.

In practice, the situation can be quite different. "The [client] criteria usually do not contain the performance," said Martijn de Vrieze, senior software tester at Vodafone Group (www.vodafone.com), "since a lot of people simply don't know what to put there." In early design stages, clients are usually more focused on application functionality, though they're certain to complain when the Web application is slow. As a result, when clients don't want to or don't know how to specify performance requirements, explained de Vrieze, "I set them myself."

That's fine for experienced developers with plenty of applications under their belt. Developers like de Vrieze can, and do, average the response of past projects to set a baseline, use load-testing tools and tweak the code until they get it right. At least to their own satisfaction.

Other developers adopt a collaborative approach. Before he sets the application's performance metrics, Tim Salam, senior vice president of consulting service Essemble IT Solutions (www.essemble.biz), conducts exploratory discussions with his clients to discover the business environment and determine requirements. Otherwise, said Salam, clients will use arbitrary requirements based on their own machinations, or they'll rely on data from development shops with no business skills.

In B-to-C development, sometimes it's the competitor who sets the performance benchmark. Said George Scott, Empirix Inc.'s manager of sales engineers: "If the competitor takes two seconds to load their home page and yours takes 15, that's a big deal."

That isn't to say that nobody uses metrics well. John Goode, technology vice president at BenefitPoint Inc. (www.benefitpoint.com), performs two main types of tests: traditional load testing, simulating a large number of concurrent users; and tests that simulate users with large amounts of data on particular transactions. "Overall, we focus on average response time of transactions throughout the application. Among the criteria are: How often is the transaction executed by users? More frequently executed transactions get more attention. How visible is the transaction? For example, the log-in process should be relatively fast since every user experiences that part of the application on a daily basis. How much data can be displayed on a page? Transactions that allow users to view large

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Performance Testing Falls to Developers

Overwhelming majority of companies leave responsibility with original development team

BY ALAN ZEICHICK

Even after deploying Web applications, the development team usually remains responsible for performance testing and monitoring. That's according to a new testing and debugging study performed in February by BZ Research.

In the new study, 85.6 percent of respondents said that their developers, programmers or testers on the development team were responsible for the performance testing and monitoring for internally developed applications. When asked specifically about Web applications, 71.6 percent of respondents said the development team was in charge of performance testing and monitoring.

Team leaders play a smaller but vital role in performance testing and monitoring. In the survey, 36.4 percent said that the development management or team leaders were responsible for all applications, and the same number for Web applications.

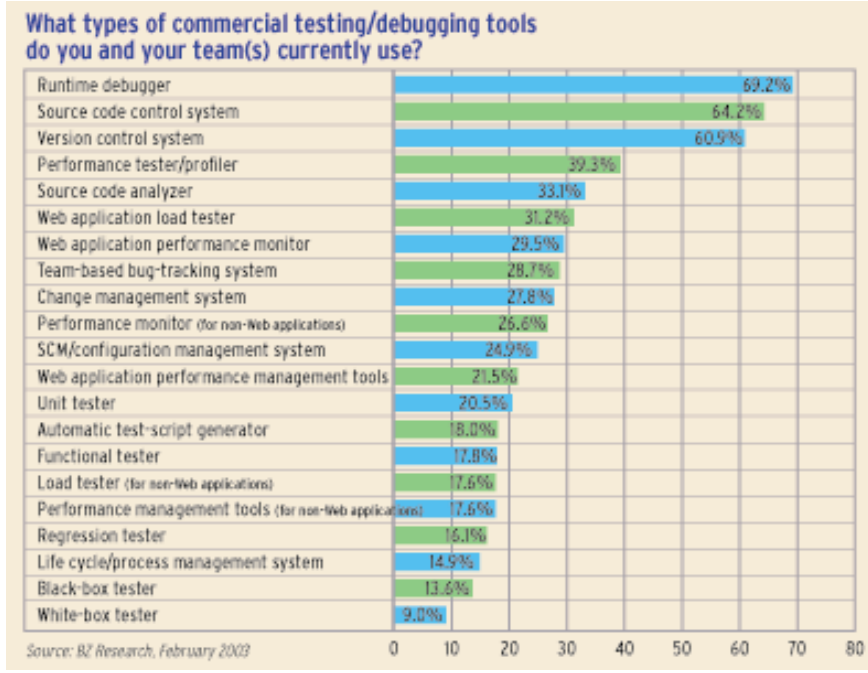
By contrast, relatively few companies give the performance testing and monitoring task to dedicated test teams: only 25.5 percent for all internally developed applications, and 22.8 percent specifically on Web applications.

The survey was completed by 640 SD Times subscribers, and carries a margin of error of 3 percent.

Also, 54.5 percent of survey respondents said that within their organization, testers were integrated into the programming team; 63.3 percent said that the company had independent QA/test teams.

The survey also asked which types of commercial testing/debugging tools were currently in use. The most popular were runtime debuggers (69.2 percent), source-code control systems (64.2 percent) and version-control systems (60.9 percent). Also popular, but with fewer than 40 percent of respondents using them, were performance testers and profilers, source-code analyzers, Web application load testers and performance monitors, and bug-tracking systems.

BZ Research is subsidiary of BZ Media LLC (www.bzmedia.com), publisher of SD Times. ■


What types of commercial testing/debugging tools do you and your team(s) currently use?
Runtime debugger 69.2%
Source code control system 64.2%
Version control system 60.9%
Performance tester/profiler 39.3%
Source code analyzer 33.1%
Web application load tester 31.2%
Web application performance monitor 29.5%
Team-based bug-tracking system 28.7%
Change management system 27.8%
Performance monitor (for non-Web applications) 26.6%
SCM/configuration management system 24.9%
Web application performance management tools 21.5%
Unit tester 20.5%
Automatic test-script generator 18.0%
Functional tester 17.8%
Load tester (for non-Web applications) 17.6%
Performance management tools (for non-Web applications) 17.6%
Regression tester 16.1%
Life cycle/process management system 14.9%
Black-box tester 13.6%
White-box tester 9.0%
0 10 20 30 40 50 60 70 80
Source: BZ Research, February 2003

APP TUNING

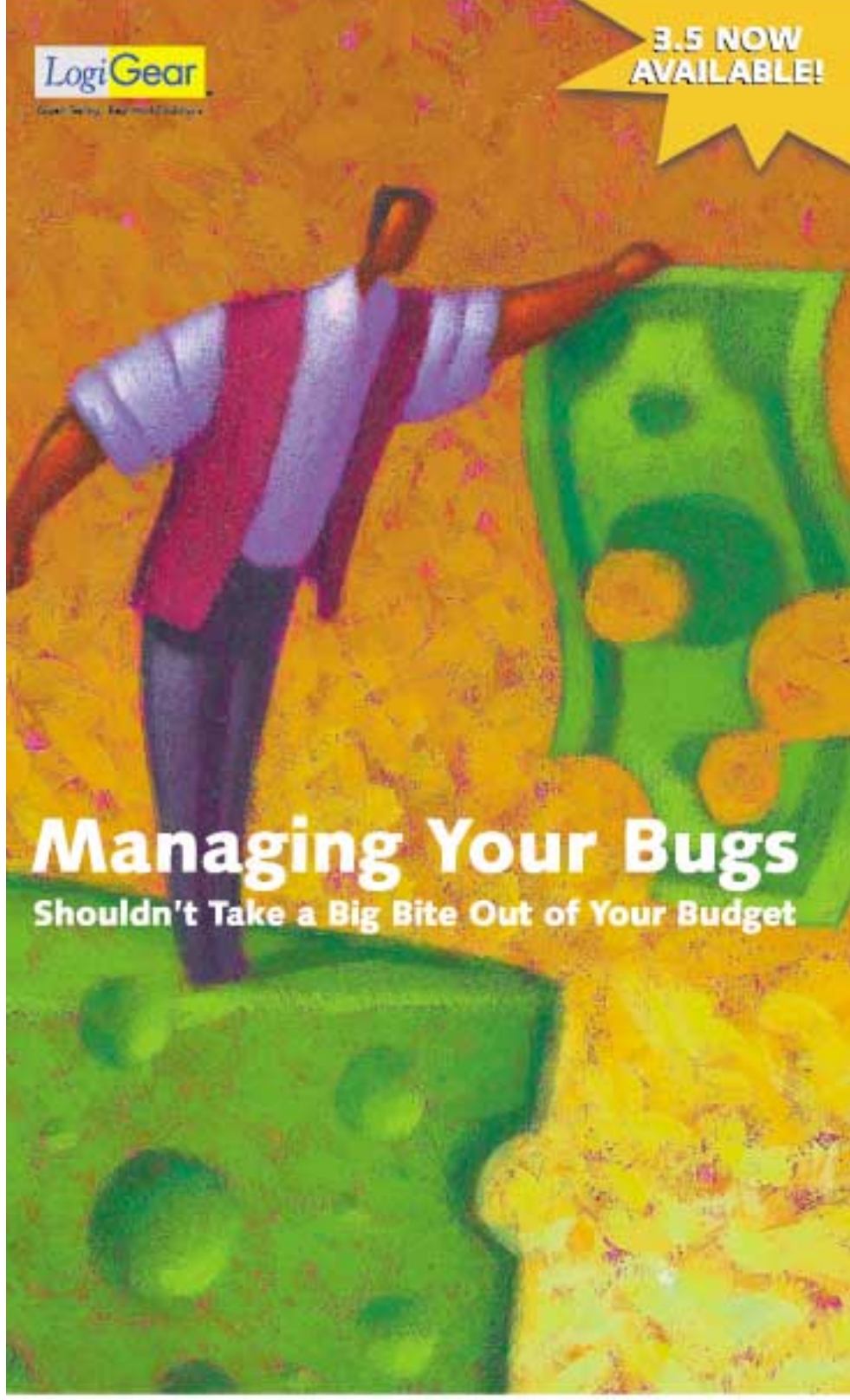
◂ continued from page 30

amounts of data may perform more slowly than the average transaction." BenefitPoint provides Web-based employee benefits products for insurance brokers, consultants and carriers.

In B-to-C, sometimes competitors set benchmarks, says Empirix's Scott.

In the experience of Jeff Zado, JProbe Suite product manager at Quest Software Inc. (www.quest.com), the people who are most accurate about determining useful performance requirements early are those with much personal experience, often painfully gained.

Establishing criteria is one thing. But as consultant George Toft said wryly, whether or not the project pays attention to the metric is another matter. "I know of one application whose average time to render the first page was 120 seconds, with the low end at 75 seconds. But, by golly, it could sustain 100 concurrent users." ■



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TUNING TOOLS

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The answer, agree most vendors, is to establish a progressive testing strategy that increases in granularity while you build the product.

"Establish baselines as the application is being developed," said Lloyd Bloom, product manager at Compuware Corp. (www.compuware.com). "As it moves into testing, that [performance] information will help the development and QA teams measure the app against expectations."

Compuware's QA Load Performance Edition includes tools for load testing and test data management; the company's Network Vantage provides application monitoring and reporting.

You may not be able to determine if the performance is good until you plug together some of the pieces. But testing early, and creating ever-more-specific metrics for functional components as the application comes together, at least will let you know if a change slowed the application, and help solve the problems sooner.

Part of that process, said Bloom, is discovering how granular the performance requirements need to be, and how realistic the client's expectations are.

Some application owners will say they want the application to support 5,000 hits per day. But what kind of hit? A site visitor scanning the entry page content? A database lookup? How many of the database searches are likely to be concurrent? Focus, Bloom advised, on the throughput of a single user, with a mix of transactions.

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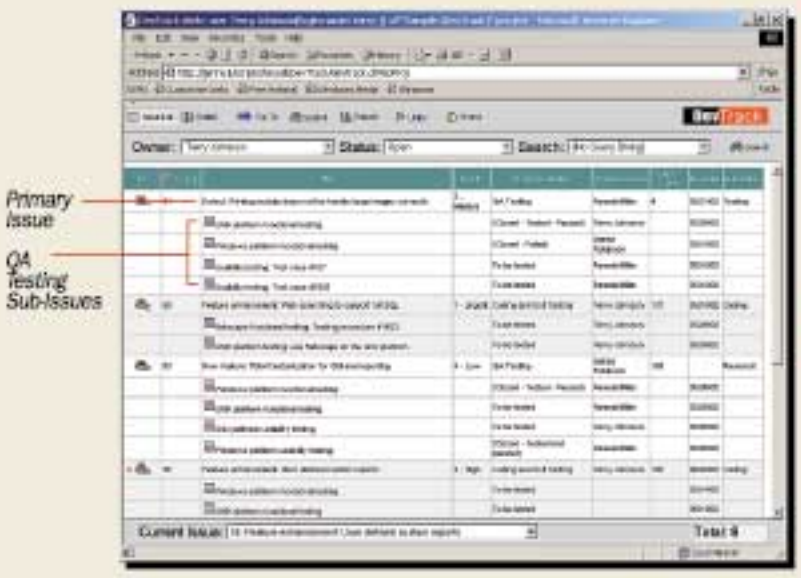

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LOOKING DEEPER

Performance tools can help you in two ways, technically: They can help find the bottlenecks, and they can drill into the code to find the source of the problem. (Or rather, sources. George Scott, Empirix's manager of sales engineers, pointed out that it's rare to find a single "radioactive transaction" bollixing up the works.)

Users expect rapid response, says Precise's Mulvehill.

To get the most from this effort, you may need multiple tools. For example, a load tester can tell you how much traffic you can handle, but not why and where the limitation is imposed.

Precise's Mulvehill shared an anecdote about an automobile manufacturer experiencing performance problems with an internal "product configurator" tool used internally by its dealers. The initial problem was deemed to be in the J2EE code, which did database lookups. Each database transaction had acceptable performance.

However, Insight helped the customer discover that the code did database lookups 100 times to populate the product configurator. One database transaction was fine, he said, but 100 of them slowed the application to a crawl.

THE FEEDBACK LOOP

Performance testing one application can give you insight into expectations for later projects—if, that is, you make a point of incorporating the lessons learned into the design process for next time. Vendors tell us that this happens much less frequently than it ought to.

The feedback loop, said Empirix's Scott, is the most important piece. "People often get the data, and they don't know how to translate it back into results," he said. ▮

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EDITORIAL

Managing Web Services Complexity

Metcalfe's Law states that the usefulness, or utility, of a network equals the square of its users. If 200 people you know have a telephone, fax machine or e-mail, that medium is much more useful to you than if only 20 people use that mode of communication. Or if only two do.

One practical aspect of Metcalfe's Law is that big communications networks grow bigger, while competing networks disappear. Upstart auction sites are no match for eBay, and there aren't many competitors to the Internet. The reason one joins a communications network is to communicate, and the more nodes, the greater the value for all participants.

Yet, while a network's growth adds clear benefits, the increased complexity introduces pain. As e-mail messaging has become ubiquitous, so has spam. As the number of telephones increases, so do dinnertime telemarketers. As eBay grows, so does the number of people competing against you for that mint-condition Boba Fett pewter figurine.

We've seen, however, that after a period of pain, larger networks evolve tools to manage the complexity. Many e-mail hosts and clients offer rudimentary spam filters. Caller ID helps screen unwanted calls. And on eBay… well, you'll have to settle for a die-cast Boba Fett instead.

Web services will follow that same pattern. Prototype apps, with a handful of SOAP servers and clients, will perform admirably when first deployed. But that's only a start.

Web services deployments will start with one silo application, configured in a hub-and-spoke design, perhaps with limited meshing. After several such silos exist, they may be linked via carefully monitored SOAP transactions between hubs. Architects will have clear understanding of the network.

As more apps go online, Web services will reach the tipping point. The hub-and-spoke model might devolve into a chaotic mesh that spans the enterprise — and engulf partners, customers and service providers. Will individual developers understand the interdependencies involved? Probably not. Architects? Only at first. Administrators? Unlikely.

Many Internet users have seen how Web servers can degrade during a Victoria's Secret webcast, after a major news or sporting event, or even a malicious worm. Those are relatively simple applications, compared to those running Web services. Nobody yet knows how a complex mesh of Web services will behave in a large-scale deployment.

Indeed, as the Web services mesh grows, chances of service failure may become greater. The collapse of a key application might cause unpredictable side effects. The overloading of a single vital node might affect performance across the enterprise. Indeed, the owners of a particular Web service may not realize its importance and take it off-line, or fail to provide it with sufficiently robust servers, high-availability features, or bandwidth to handle demand.

Web services are still an emerging networking paradigm, and as yet, there are no satisfactory answers to these questions. But there is no doubt that Bob Metcalfe's Law will apply. The value of Web services will grow in proportion to the number of clients and servers on the network. And so will the pain. ▮

GUEST VIEW

XML: ACCIDENTAL INFRASTRUCTURE?

We're entering a new era of creativity in software development. The canvas for this software renaissance is business, and the paintbrush is XML (Extensible Markup Language).

XML is unleashing creativity for two main reasons. First, rapidly evolving XML standards reduce the guesswork and busywork in creating interoperable, reusable code, so that developers can focus more on perfecting the business functionality of their XML documents and services, versus the low-level mechanics of messaging. Second, XML abstracts business-relevant information—such as "customer name," "price," "unit" and "part number"—that used to be buried deep in individual application interfaces, and makes it readily accessible to developers. By manipulating the metadata that describes this business information, developers can tie their applications more intimately to business goals.

IT departments also soon will be able to mine metadata to demonstrate how XML-ized assets are contributing to the business—things like revenue growth, return on individual business processes and the overall customer experience. In the process, they'll gain valuable near-real-time feedback that can help them build better code and applications.

So, it's no surprise that developers today are pushing XML beyond its original use as an SGML replacement. They are using it for application integration and for creating repurposable software components—from basic services to complete business processes. XML development is happening in large enterprise initiatives, departmental-level projects and skunkworks operations. The early ROI from early XML initiatives—such as connecting partner channels or exploiting Internet business opportunities—is very promising, particularly over traditional development techniques.

JACK SERFASS

Aside from development projects, XML also is being "back-channeled" into enterprises in the form of new XML service interfaces to enterprise applications from SAP, Siebel, Microsoft and other vendors. XML is flowing into enterprises in the form of not only Web services but also workflow and transactions. A lot of IT departments may be sitting on extended franchises of XML and not completely realize it.

Because of all this activity, XML is injecting a powerful new layer of software code—and business context—into enterprise application infrastructures.

In their rush to capitalize on the creativity potential of XML, however, developers and project managers need to start thinking more strategically. Specifically, you need to think carefully how XML standards get implemented—and not leave too much up to chance. In other words, don't let XML become an "accidental infrastructure."

Here's why this is a risk. Fragmented and incompatible XML standards initiatives are introducing massive heterogeneity into application architectures. There are more than 700 industry-specific XML standards and schemas alone!

A simple XML message might contain three to five namespaces from three to five different standards. (I think of an XML namespace as a "snapshot" of XML standards at a single point in time and in a unique context.) The message can get further complicated when developers use competing standards, different ver-

LETTERS TO THE EDITOR

J2EE ARTICLE LACKING

I was excited to see the article "Java in the Enterprise: Testing the Complexities" (Mar. 1, page 25, or at www.sdtimes.com/news/073/special1.htm). However, after reading the article, I found it very lacking and a complete waste of time.

The article did nothing but point out problems from a 10,000-foot viewpoint. In addition, no solutions to these problems as they relate to Java in the enterprise were discussed. This article ends up providing a very negative view of developing enterprise solutions with Java. In fact, all enterprise-level applications regardless of the language they are developed in suffer the same kinds of complexities.

Kendall A. Adkins
Senior Software Developer
HCA Health Care
Mars Division
Nashville, TN

STANDARDS AND IBM

Regarding Steven J. Vaughan-Nichols' column ("Retooling for WS-I," Mar. 1, page 33, or at http://www.sdtimes.com/cols/javawatch_073.htm), I would like to respond that IBM is committed to open standards, especially in the WebSphere platform.

Just witness our investments in Apache, Linux, Eclipse, the Web services stack, WS-I, XML, GRID, and so on. IBM has 3,000-plus employees actively involved in standards organizations. Open standards define our culture.

As for J2EE, it's the foundation of the WebSphere platform. We are simply saying that our customers need more than just J2EE to build out Web services-oriented (SOA) applications and cross-integrated business processes that can be made available "on-demand" and whose behaviors can be dynamically adapted in real-time. In addition, customers want to better optimize the use of the underlying network resources and virtualize the complexity/heterogeneity of the assets in their networks.

We view J2EE as an important part of the open standards foundation, but only a component of it. It's like the engine in a car—but a car needs more than just an engine. The engine (J2EE) must be surrounded with other standards to create a complete platform.

The slow pace of the Java Community Process' formal adoption of new standards is driving vendors to implement pre-standards such as WS-BPEL for workflow. Lots of real customers cannot wait for the JCP to catch up.

Think about it—why do Linux, Apache and Eclipse innovate so quickly to meet customer needs? IBM has said for more than three years that the best thing for J2EE is that it become

sions and different styling choices; and when they format the message so that it will work on different platforms, such as .NET and Java, which handle messages differently in many areas. The resulting message may be technically "well-formed," but that doesn't automatically mean it can work with other well-formed XML messages—or that it will behave as expected.

In short: Just because XML is based on standards doesn't mean that XML documents are automatically interoperable.

Consider SOAP, the standard that describes how XML is messaged. Many development organizations may experience interoperability problems with SOAP in the future because the forthcoming update, SOAP 1.2, isn't fully compatible with the current release, SOAP 1.1.

Yes, SOAP 1.2 is a big advancement because it provides a much stronger structural framework. But it also changes the semantics of message headers such that SOAP 1.1 processors won't be able to process SOAP 1.2 messages. SOAP 1.2 processors receiving a SOAP 1.1 message can either process the message (thus requiring support for the 1.1 and 1.2 specifications in the processor) or return a fault, which could end the transaction. For developers, this means that if you want to use multiple XML services in a chain, you will probably have to make all services use either SOAP 1.1 or SOAP 1.2, or potentially face interoperability problems.

This may not be a big problem if you "own" all the services. But if your application is publishing or consuming other services, particularly outside the firewall, chances are you won't be able to dictate use of the same version of SOAP across the enterprise.

The semantic change in SOAP 1.2 could create a real domino effect, because SOAP is the framework upon which other standards are based. Consider WS-Security, which is based on the SOAP framework. If you have implemented WS-Security based on SOAP 1.1, will the implementation continue to work (unmodified) with SOAP 1.2? What about WS-Transaction, WS-Referral and WS-Routing? BPEL4WS? Changes of one standard can ripple down to others. The WS-I organization is attempting to handle this issue by providing "profiles" of acceptable stacks of standards.

The SOAP 1.1/SOAP 1.2 interoperability problem is just one of several hundred problems my company has discovered while working to improve XML interoperability. There are likely many, many more.

Of course, there are workarounds for such problems, but they generally are not terribly efficient. For example, the problem above could be handled by building a SOAP processor with two interfaces that can route according to the headers in the incoming traffic. But most developers would prefer to spend time creating versus retrofitting.

As XML matures, many interoperability problems will get sorted out. But, for now, developers need to be vigilant about interoperability problems.

STAYING ON TRACK

Developers can stay on the creative track by going into every XML project understanding potential interoperability problems—and designing with them in mind. How well you design your XML metadata will dictate how interoperable it will be in the future. Obviously, the greater the number of developers that do this, the more solid their companies' emerging XML infrastructures will ultimately be.

Beyond design creativity, XML also will offer software developers a new way to prove their value to their companies. By leveraging XML metadata, businesses can pull business-relevant data "off the wire" to see how XML services are contributing to the business. IT will be able to demonstrate the ROI of software assets, at a very granular level and on a near-real-time basis.

By tapping into XML metadata and its relationship to end points and activity, IT departments will be able to monitor, measure and enforce the quality of online business—very similar to how IT monitors physical networks for quality of service.

To get the full creative potential out of their emerging XML infrastructures, development teams and project leaders should take a few steps. Since many interoperability problems can be avoided by better XML design, the first thing IT departments should to do is increase their XML competency levels and collaboration between application teams.

Second, IT should attempt to automate control of how services interact with one another and begin providing relevant feedback to both business and IT professionals. Third, developers need to get their arms around XML namespaces—the linchpin for interoperability—and how they interact across internal and external systems. Last, IT should establish firm guidelines for extending XML to additional applications, customers, partners and channels to optimize interoperability and to achieve economies of scale. ■

Jack Serfass is co-founder and chairman of Swingtide Inc., which sells XML management tools.

a true open-source initiative like Web services and the rest of the open platform elements.

We are extending WebSphere application server with new technologies that deliver SOA capabilities plus profound productivity in the way of autonomics, agile administration, SOA development, etc. These technologies are increasingly standards-based. WebSphere's current workflow technology is a pre-cursor of WS-BPEL and will formally support the standard.

We plan to base grid protocols on the OGSA and the Globus work, which is building the grid protocols on J2EE with WebSphere as the reference platform. WebSphere's business rules are just configurable constructs in the tools between the BPEL flows. WebSphere's advanced transactional connectivity involves WS-T, WS-C, and JCA 1.5.

As for what you call WebSphere's "proprietary extensions," they will evolve to support formal standards as those standards emerge, and IBM will continue to invest in helping to drive industry standards. Our customers do not want to wait for standards to fully emerge since they are building them anyhow in their applications right now.

Scott Hebner
Director of Marketing
WebSphere Infrastructure Software
IBM Corp.

INFRASTRUCTURE KEY TO WS

I don't agree that corporate-based Web services is years away, as maintained by the Yankee Group ("Driving Web Services," Feb. 15, page 23, or at www.sdtimes.com/news/072/special4.htm). It depends on the infrastructure that is available to an organization. If, for example, they have a J2EE-EJB environment, then (as we have discovered) to exploit Web services standards to extend access to this existing function is very easy, and can be done with a few days' effort. The key is that pre-existing infrastructure.

We have found that UDDI facilities are not a prerequisite. What is a prerequisite is performing a good business requirements review of the flow by carefully considering, for example, the use cases or storyboards associated with the business problem at hand.

The other area that we see Web services being of value, especially in a really heterogeneous and highly decentralized environment—as are most governments and other large organizations—is to keep our silos and yet share information in a very structured and measurable way.

Silos can be a useful way to guarantee privacy. However, since organizations need to share information for business and strategic reasons, Web services, XML-based and loosely coupled, will likely emerge as a viable way to achieve both ends: secure segregation but potential for sharing of information in a transparent and auditable manner.

The problem with Web services is whether the technology and standards will remain open. Patent law, applied indiscriminately, will probably do more to retard acceptance and deployment of this outstanding technology than will usability.

Edwin Lang
Ministry of Health
Ontario, Canada

CORRECTION

Ed Lycklama was CTO and founder of Sitraka Inc. at the time of its acquisition by Quest Software Inc. in October 2002. Lycklama, who is now Quest's chief architect of J2EE solutions, was misidentified in a story that appeared on March 1.

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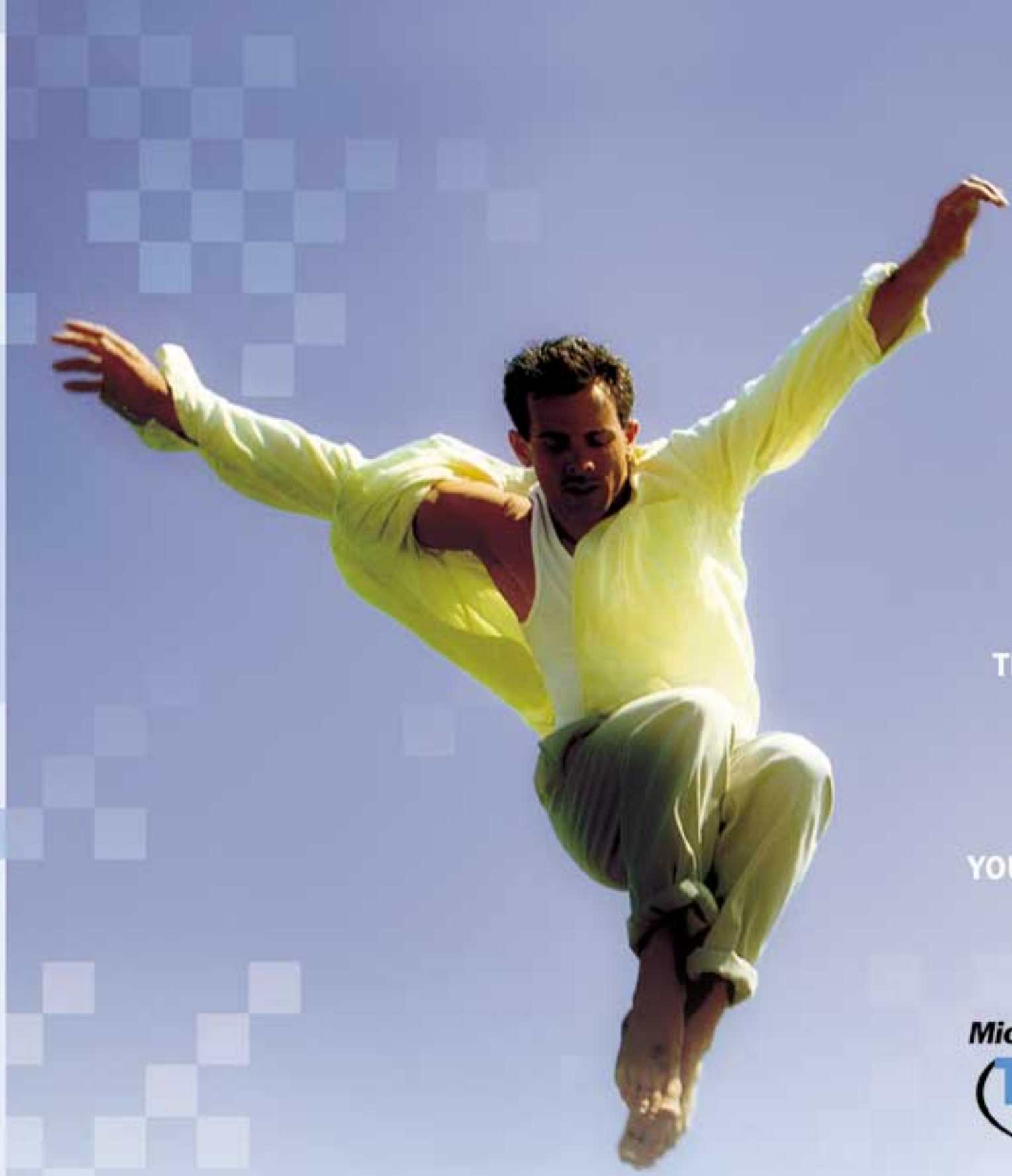

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JVM PLUG-AND-PLAY

I don't want a current Java Virtual Machine shipped with my operating system. For that matter, I don't want a current .NET virtual machine shipped with my operating system. What I want shipped with my operating system is a loader capable of recognizing the need for and *retrieving* the current virtual machine from a permanent, secure URI. If as a convenience you want to include the virtual machines current at the time of CD pressing, that's fine, but it's like including a cheap "AA" battery in the box with a gadget: The whole benefit lies in the replaceability, not the provision.

This is what's at stake in the Motion-for-Stay subskirmish of the Java-Must-Carry battle of the Java-versus-.NET front of the Microsoft-Sun war.

To review: Microsoft has been shipping laughably outdated Java Virtual Machines with Windows and Internet Explorer, which support either Java 1.02 or Java 1.1.4. The gap between the functionality of Microsoft's VM and the current 1.4 release of Java is such that, effectively, Microsoft's VM is worthless. Why? To pick one example, Microsoft's VM supports only the AWT user-interface toolkit and not Swing, making it incompatible with many apps.

To get around this, Java developers use two technologies from Sun: the Java Plug-In and Java WebStart. Once installed, these make the experience of adding a Java applet to a browser interface or launching a stand-alone Java application essentially painless. Once a Java application is launched, the plug-in adds the Java logo to the Windows system tray, a 16 x 16-pixel triumph for Sun's marketing department. When clicked, this logo brings up an arcane semi-command-line interface. So much for building pleasant associations in the mind of the unsuspecting.

WINDOWS & .NET WATCH

LARRY O'BRIEN

The Java Plug-In has been available for years. It is an 8MB download and brief installation away for those running Microsoft's VM. I'd be willing to bet that 90 percent or more of the readership of SD Times has the capability of running Java applets, if not at the 1.4 level, at least at the critical 1.2 level.

Sun argues that the 8MB download represents a significant anti-competitive barrier, quoting Judge Jackson's finding that Microsoft "retarded, and perhaps altogether extinguished, the process by which [Navigator and the Java platform] could have introduced competition into the [Intel-compatible PC operating-systems] market."

Now, it wasn't that long ago that 8MB was a daunting download, but in a world that has witnessed Napster, it seems nonsensical to argue that 8MB is going to keep people from getting something they value. (Let's just ignore the question of whether Judge Jackson was correct in categorizing Navigator and Java as competitive at the operating-system level.)

Sun made this argument in March 2002, as part of a broader claim that judicial relief was required to temper the competitive advantages that Microsoft would enjoy by shipping its .NET Framework with future operating-system releases.

In January, Judge Motz of the U.S. District Court in Maryland agreed, and ordered Microsoft to stop shipping the Microsoft JVM, and instead include a JVM and Java Plug-In provided by Sun four months prior to an operating-system launch. Microsoft was told to register that Sun-provided JVM as the default, and to make available Sun-provided JVM upgrades in the same manner that Microsoft makes available .NET upgrades.

This last provision is the most significant, as it implies that twice a year, Sun can "push" new capabilities to most Windows users. If you don't think that such capabilities are significant, you must not have resisted upgrading to Windows Media Player 9, a perfectly fine piece of software whose upgrade had a "resistance is irrelevant" character more off-putting than anything that came out of the antitrust trials.

While Sun has overstated the case by claiming that the status quo causes "irreparable harm," Microsoft cannot claim the high ground on the basis of its response either.

Microsoft wrings its hand at the pity of retiring the venerable Microsoft VM, and instead advocates migrating Java code to .NET (or at least Flash). Only then, as a last resort, "replace the Microsoft VM with a Java Virtual Machine from another company." There's also gratuitous fear-mongering, with prominent mention that the settlement agreement with Sun forbids "even security fixes" to the Microsoft VM after Jan. 2, 2004.

The lawyers for both companies were scheduled to meet again in late March (after this column was written). Given that Microsoft found eight security holes in its obsolete JVM as recently as December 2002, the company has the most to gain by acting reasonably, gracefully conceding that Java applets are here to stay and pointing consumers to the Java Plug-In and developers to… well, I suppose there are one or two Java books available *somewhere*. ▮

Larry O'Brien is an independent technology consultant and analyst, and the founding editor of Software Development Magazine.

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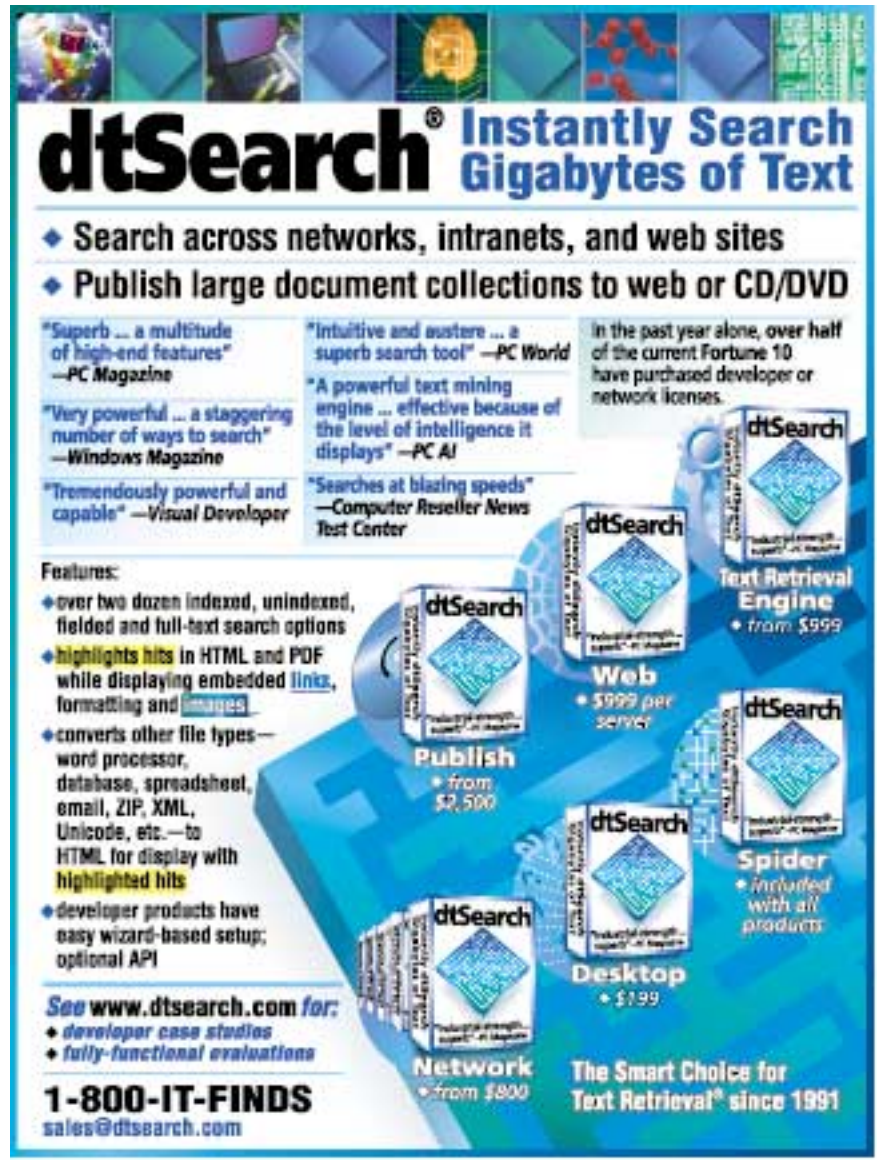
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ORION: GOOD FOR SUN? GOOD FOR YOU?

Here's where I'm coming from: I believe in open standards. I may have my doubts some days about open source, but I've never doubted that open standards are the best of all possible development worlds for both software and business.

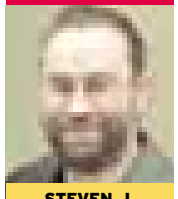
Why? I could go on for hours, but for me, one of the most important reasons is that open standards mean you're never locked into a single vendor. And now Sun wants to take Sun Open Net Environment (ONE), and all the essential servers—application, directory and portal—and bundle them all into Solaris in a far-reaching plan called Project Orion.

So what's wrong with that? Well, here's my problem. If Sun, Java's dad, bundles everything a developer needs into one massive package, what will Java's other relatives—like BEA, IBM and Oracle—do?

When Sun first publicly presented Java to the world in May 1995, it was an interesting software platform. Developers liked it, but it was still a Silicon Valley-only play. Then, thanks to a deal with Netscape made literally hours before Java was introduced to the public at SunWorld, it was seen by many as being the next big thing for the Web. Of course, it was. But it was always meant to be far more. After all, by 1992, Oak, Java's immediate ancestor, was powering up the *7, a prototype wireless PDA-like device that today's developers would recognize instantly as an evolutionary step toward the Tablet PC.

But, while James Gosling and the rest of the original Green Team had created a revolutionary platform, Java would not have been turned into one of the mainsprings of enterprise computing without open standards and the Java community.

JAVA WATCH



STEVEN J. VAUGHAN-NICHOLS

Without community support for a Java based on open standards, Java would still have been important, but in the same way that Perl and PHP are important today: They are vital but not enterprise-centric languages. Had it not been for the Java community, we might be developing in a world where—shudder!—our choices would be Visual Basic or C++. They're both fine in their places, but for enterprise applications? I think not.

Sun is not making Java closed with Orion, but it is making open-standards-based Java less attractive to other vendors. After all, if you can get everything, and I mean everything, you need for Java enterprise development in one economy-priced package, wouldn't you do that? Sun is betting you will. After all, it's really the same bet that Microsoft made with its Windows server operating systems and languages.

There are differences, though. Microsoft didn't have community partners; it had rivals. Microsoft also started its foray into development languages and application servers only after it had a near monopoly over the PC desktop operating system. And despite its best efforts, it still hasn't made half the inroads into the server space that it had hoped to.

Instead, according to IDC's latest numbers, the server space is still dominated by IBM, followed by HP/Compaq, with Sun coming in third. If you were to look only at the Unix world, Sun's Solaris is still top dog, but the others are on its heels, and Linux continues to gain on everyone.

Of course, Sun is just doing this in response to existing market forces. In earlier columns, I've talked a lot about how BEA and IBM have been tweaking their Java implementations so that to really make them strut their stuff, you need to buy into an all-BEA or all-IBM solution. So, why shouldn't Sun do the same by putting everything you could need with Solaris?

Sun also may be worried about the economic viability of its application servers because of the open-source players. JBoss and Tomcat are getting more popular by the day, and many developers tell me that they just don't see any added value with going with a vendor's application server, no matter whether it's BEA's, IBM's or Sun's.

So, for all these reasons I can see why Sun is launching Project Orion. But I'm afraid that this will encourage Sun to take Java and continue to make it, for practical development purposes, more closely tied to its particular servers, operating system or even hardware platforms.

And if that happens, Java could end up being a language and a platform that no longer is open, and then it will recede in importance.

In the short run, Sun with Orion, BEA with WebLogic, and IBM with WebSphere may all prosper. There are good things about all these packages. And we may indeed prosper with them.

But in the long run, if for all practical purposes you must choose to develop only in BEA, IBM or Sun, Java will be the weaker for it. Java has been strong because of a community and open standards. Divided into company-specific stacks, Java will weaken and so will our businesses. ▮

Steven J. Vaughan-Nichols is editor of Practical Technology (www.practical-tech.com) and has worked as a programmer for NASA and the Dept. of Defense.

KITCHEN SINK NOT INCLUDED

The market for integrated development environments is rapidly moving toward much larger offerings. Borland, IBM, Microsoft and Sun are all in the process of delivering large, expensive tool suites that will compete head-on. This trend responds to market pressure brought to bear by freeware.

Vendors now separated from their profits at the individual product level must derive their premiums from integration of large suites of tools. These suites have the additional benefit of providing a certain stability to the user base. Once a site settles on a chosen tool set and becomes intimately familiar with all the peculiarities, it is loath to switch to another suite except for the most dire causes.

Today, every vendor of IDEs participates in low-end giveaways: Microsoft enables the download and use of the .NET development tools from its site at no cost, IBM offers an excellent IDE through its support of Eclipse, Sun offers NetBeans, and Borland makes a personal edition of JBuilder available for free. Borland also offers its C++ compiler at no charge. These tools are all professional grade and entirely satisfactory for a developer who needs nothing more than emacs as an environment.

Each of these vendors, however, is betting heavily that enterprise-level solutions will be needed by just about all substantial customers. By these solutions, I mean architecture and design tools, advanced deployment platforms, and products that facilitate developer collaboration. This vision drove IBM's acquisition of Rational, Borland's acquisition of TogetherSoft and StarTeam, and Microsoft's wholesale revamp of Visual Studio.

How this gambit will play out is by no means clear. Virtually no developers at ISVs that I am aware of use modeling tools. Nor do many corporate developers. So, it's not a given that big-ticket IDEs will have a wide appeal.

In view of how elevated the prices are, the ticket will surely be a deterrent. Borland's comprehensive Enterprise Studio 5, which includes the TogetherSoft product, began shipping in early March for about US$6,000 per developer seat.

Pricing for IBM's suite is more difficult to assess, because the company is constantly reshaping its WebSphere Studio product. It originally included Visual Age, then added what was formerly MQ Series middleware, and has thrown in other elements. IBM has indicated the Rational products will be a separate product line that retains the Rational name. So, without Rational solutions, the current WebSphere Studio edition with Enterprise Integration runs at US$5,300.

Sun's Sun ONE Studio, with several design tools and all the company's compilers, sells for US$3,000.

MIDDLEWARE WATCH

ANDREW BINSTOCK

The most affordable package is Microsoft's Universal Subscription to MSDN, which delivers all of Microsoft's development tools, its operating systems and deployment platforms, plus Microsoft Office, for US$2,800 per seat. This includes the remarkably redesigned VS.NET environment, which in my opinion is the finest product Microsoft has ever released, even for developers like me, who are not coding much for .NET.

If you pine for the old days, when comprehensive tool suites rarely cost more than $1,000, prepare to be increasingly disappointed. As Web services, XML and J2EE force developers to rely on more-complicated tools, the higher prices will be inescapable.

One company that has not bought into this philosophy and still hews to the line of great tool suites at very reasonable prices is Macromedia. Its recently announced Studio MX Plus product sells for US$900 and includes Dreamweaver and Contribute, Flash MX, Fireworks MX, FreehandMX and ColdFusion MX. That's pretty much anything you would need to develop for a Web site, except for the Java platform, which Macromedia sells separately in JRun 4 for $900 per processor (not developer seat).

This bundle—the first on this scale by Macromedia—has only just come out, so it's too early to tell whether this pricing will work the way you'd expect: Owners of all point products will upgrade to the suite. (Macromedia's approach in this regard is to have its better selling products pull along its less popular products. In the process, sites unfamiliar with the latter gain exposure to them.)

It is clear, however, that tools vendors see no future in selling individual solutions. All products from here on will be large, more-expensive sprawls that make use of all those free hard-disk gigabytes. This transition away from small, low-profit products is akin to what has happened in hardware: Vendors are looking to servers and the big boxes for their profits. However, in hardware, those same vendors have continued to compete and innovate at the low end—the PCs. This now looks unlikely in the market for development tools. ▮

Andrew Binstock is the principal analyst at Pacific Data Works LLC.

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Performant's OptiBench

Taking on huge issues of performance and debugging, monitoring suite captures data from inside Java apps

BY ANDREW BINSTOCK

There is little doubt that a key gating factor for the development of enterprise-scale distributed applications is the lack of high-end tools. I, for one, have previously discussed my amazement that reliable apps can be written at all when debugging can be so frightfully challenging—a central difficulty of which is purely replicating bugs.

One vendor that is rolling out true enterprise development tools is Bellevue, Wash.-based Performant Inc. The company's OptiBench 2.0 is a high-end tool suite that aims at monitoring activity of Java enterprise application servers to establish where performance can be enhanced and possible errors corrected.

Because Performant's promotional materials portray it as a performance profiler, a QA tool, a testing tool and a diagnostic tool, readers might find it difficult to establish exactly what OptiBench does. Looking at the product from the inside out helps tremendously in clarifying these multiple claims.

OptiBench inserts bytecodes into existing Java applications. These bytecodes serve as an instrumentation interface that logs what is happening with every packet and every action taken by the code. This data is leveraged by a host of interesting applications that make use of it in creative ways.

- Performance. By trapping data regarding execution latencies and interprogram delays, OptiBench can generate very detailed performance profiles. And more to the point, these profiles are gathered from the actual application working on real loads, so developers see the true performance profile, rather than one generated by load simulators or other emulated environments.
- Testing. Because OptiBench's data capture has very fine granularity, entire transactions from the original HTTP request through the act of recording data in the database can be captured and logged. From this data, developers can generate test scripts that exactly match what has happened in the distributed environment. Such scripts can include re-creation of threading patterns, context state information and workload balances. A playback API makes it easier to create these detailed scripts. The API offers numerous options for screening out events of no interest and masking off others that are necessary but unimportant in the final results.

Between these two primary benefits, OptiBench enables a site to perform very accurate diagnostic work. One customer arose at a large site that knew one particular small and straightforward module was causing disproportionately long delays in processing.

After careful study of OptiBench's output, the developers discovered that the module's processing was being done primarily through the Java exception mechanism—a notoriously slow performer. (Presumably, this situation arose because the nature of the transactions changed but the code did not reflect this evolution.) By diagnosing and fixing this one problem, performance of the application was visibly improved.

Another interesting use of the data is in staging and preproduction of software rollouts. If you want to replace a set of modules in an existing application, you can use OptiBench scripts to test them with actual workload data and HTTP transaction information saved from previous runs of the existing software.

OptiBench is Java-centric. It works with the major J2EE app servers (although not Oracle's) and it tracks messages running on Java Message Service (JMS) or HTTP transports. Use of other messaging middleware limits OptiBench's logging to simply recording time in and time out of the middleware for any data packet as well as capturing any changes made to the data by the foreign systems.

The package is expensive. It costs US$25,000 for the base console and between $5,000 and $9,000 per server processor; according to Performant, typical installations are in excess of $50,000. Be advised that the company is remarkably restrictive about evaluation software. After a qualification process, a prospective site can test the software for one to two days only. Beyond that, candidate sites must pay for use of the evaluation version. This software is clearly intended for large sites with complex code to work on. And for those sites, they are likely to find a tool with few strong competitors. ▮

Andrew Binstock, a regular columnist for SD Times, is the principal analyst at Pacific Data Works LLC.

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AT YOUR SERVICES

Companies have successfully deployed Web services to solve internal integration problems, and now are investigating how Web services can best be utilized strategically in the context of their relationships with customers, partners and providers.

A number of companies and industry experts believe this can best be accomplished through the creation of services-oriented architectures (SOAs), which define and manage how loosely coupled, component-based applications can either consume Web services or be exposed themselves as a service. While the notion of an SOA is not new, the emerging standards governing Web services are allowing businesses to create these architectures in a way that should ensure interoperability.

INDUSTRY WATCH

DAVID RUBINSTEIN

For developers, this should mean more time for creating applications and logic that give a business a competitive advantage, and less time spent on the specifics of J2EE or .NET, or the middleware medium. Separating the business functionality from the underlying infrastructure is the goal, as development shifts toward structuring component-based, loosely coupled applications to leverage various services. Rob Morris of integration solution vendor ClientSoft calls this "the evolution of the collective consciousness of application developers."

So, too, has the business side of the equation evolved. More and more, managers are realizing the value of reusing functionality and the cost benefits of having applications that are ready for integration as they are written. This gives the business the kind of agility it needs to adapt to changes in the marketplace quickly, to stay a step ahead.

Of course, not all developers are evolving at the same speed. Developers have seen themselves as equal parts scientist, mathematician and artist. They often view themselves as renaissance men, creating masterpieces. But in today's world, according to Matt Gressek, solutions architect at Wakesoft Inc., "unless an application is designed for change up front, that masterpiece won't be one tomorrow."

But will SOAs go down smoothly in all organizations? And should they?

In organizations where an EAI solution already is in place, linking disparate back ends to the new applications, it probably will be hard to justify. As Flashline.com vice president Cathy Lippert put it, "Where there's opportunity, people will expose [application] interfaces as Web services. Where there isn't, they won't."

Sounds simple enough. But not everyone is buying into the current architecture arguments, and even among those businesses that do, the amount of movement along the adoption curve is different.

First of all, the standards aren't complete yet, either. UDDI, for example, fails to provide enough contextual information about the available service in its metadata to make it truly useful – what system is the service running on, and can it support more than the 10 concurrent users for whom it was designed? Secondly, there are questions surrounding runtime constraints of services, and if companies should expose multiple versions of their services because not all companies are in the same place. "How you manage these services," Lippert said, "almost has to be done with a product discipline."

To help answer some of the questions, research firm ZapThink in late February released "Ten Emerging Best Practices for Building SOAs." Analyst Jason Bloomberg acknowledged in the paper's introduction that best practices come from hard experience; as SOAs are so new, there is little hard experience to learn from, so he drew from a broader range of experiences in creating the list.

Among the techniques described are following agile programming methodologies, as they focus on simplicity and small teams working quickly and efficiently; and embracing "mix-and-match" environments, which most IT shops are.

The point of all this, according to Wakesoft president and co-founder Krishna Gollamudi, is that decisions regarding what is to be exposed as a Web service cannot be made at run-time; they must, he emphasized, be made at design-time. "Business is changing, partners and vendors change, new applications come into your organization through mergers and acquisitions," he said. "All of this is out of control of the IT department. Applications need to be configured in a flexible way to provide flexibility and maintainability throughout the life cycle."

The ability to stay flexible in business is critical to its success. For services-oriented architectures to be implemented successfully, businesses will have to show willpower to define an application structure, and to define their own best practices. Project teams cannot succeed on a project-by-project basis; this has to grow from enterprise to enterprise, from industry to industry.

Wakesoft's Gressek said, "There are a lot of parallel trends aligning … Web services, [development] agility, reducing costs of ownership. Things are coming together to push the idea of services-oriented architecture over the edge." ▮

David Rubinstein is executive editor of SD Times.

Software Industry Remains Turbulent

DATA WATCH

The global software industry is experiencing the combined effects of economic uncertainty and lower business confidence in software investments severely constraining corporate spending. The climate has been very stormy for the past two years.

According to Gartner Inc.'s report, "Global Software Market Shows Signs of Stability and Caution," fourth-quarter 2002 signs were better, but not yet good for the industry as a whole.

For the demand side of the market, Gartner surveys show CIOs are much more in tune with the realities of CEO-imposed spending restrictions than they were one year ago. These surveys now show flat software budgets for 2003.

For the supply side, many software vendors that have survived the turmoil of the past two years are demonstrating the strength of their expense control management. In a market of shrinking revenue, they are starting to report improved profitability once again. The supply side is showing signs of being in control.

Source: "Global Software Market Shows Signs of Stability and Caution," 6 February 2003, Gartner Inc.
www.gartner.com

BUSINESS BRIEFS

Architecture server vendor **Wakesoft Inc.** has secured $7.65 million in a second round of equity financing, the company announced. **BlueStream Ventures Inc.** led the financing. With the funds, Wakesoft will expand sales and marketing efforts of its service-oriented architecture server that is designed to enable reuse of enterprise assets both within and outside an organization . . . Java developer **SavaJe Technologies Inc.** has received $17.5 million in funding from **RRE Ventures**, **Orange Ventures** and **Vodafone Ventures**, new investors, as well as additional funding from existing investors **New Venture Partners** and **Ridgewood Capital**. SavaJe reportedly will use the cash infusion to expand its presence in Europe and Asia, and to fund carrier deployments of its wireless handset operating system in Asia, Europe and the U.S. Executives from Orange, RRE and Vodafone will join SavaJe's board of directors . . . EAI vendor **Progress Software Corp.** announced revenues of $71.8 million for the first quarter of 2003, which ended Feb. 28, up 11 percent from the same period last year. Operating income increased by 61 percent to $5.3 million, according to the company. ▮

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STAR East May 12–16
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For a more complete calendar of U.S. software development events, see www.bzmedia.com/calendar.

Information is subject to change. Send news about upcoming events to events@bzmedia.com.

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